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A PRACTICAL TREATISE ON

DISEASES OF THE SKIN

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BY

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WITH COLORED PLATES AND OTHER ILLUSTRATIONS

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PREFACE.

Association during the past few years with many students and physicians, at the Medico-Chirurgical College and at the Philadelphia Hospital for Skin Diseases, having taught me as a teacher the desirability of conciseness in the treatment of any subject, in this work will be found but little reference to the extensive literature of the affections of which it treats. The limits in size to which a work of its intention should be circumscribed having been rigorously imposed upon it and adhered to, it has been my constant aim within those limits to present brief, although clear, descriptions of numerous affections of the skin. I have also in the preparation of the work purposely omitted many cumbrous technical words and phrases which often confuse and mislead the student, and in their stead have substituted words and phrases well understood and fully conveying their meaning. All that I claim in it as especially original is a statement of the relative effects and values of numerous agents tested in my own many years of clinical experience in the treatment of skin-diseases.

The pictures representing the normal skin and the pictures produced by photo-micrograph have been contributed by Dr. Morris Longstreth, assisted by Dr. Martin Rively. To Dr. Richard J. Dunglison my thanks are due for the execution of the complete index that accompanies the work. The drawings for the woodcuts were executed by Mr. William Earl Smith, and are for the most part from cases of my own in the Philadelphia Hospital for Skin Diseases.

In conclusion, I would merely add that the whole work has been written from the standpoint of an active general practitioner, and, as I think it reasonable to believe, can hardly fail to bear that impress; and if I am right in so thinking, knowing as I do that that standpoint has been inclusive of special opportunities and study within the department of skin-diseases, I cannot but hope that the work will fulfil in some measure its intention of supplying the needs of the medical student and of the busy physician.

JOHN V. SHOEMAKER.

No. 1519 Walnut Street, PHILADELPHIA, *January*, 1888.

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DISEASES OF THE SKIN.

PART I.

GENERAL CONSIDERATIONS.

ANATOMY OF THE SKIN.

THE skin is a firm, fibro-elastic membrane which covers the external surface of the body, and is continuous at the natural orifices with the mucous membrane lining the interior ; is varied in function and complex in organization ; adapts itself by its elasticity to the movements of the underlying structures, and protects them from external irritation or injury ; binds the muscles and fascia together, gives shape and color to the body, and prevents the too rapid escape of fluid from the tissues. It is also of the utmost importance as an organ of sensation, absorption, secretion, and excretion.

The skin is grooved by a network of minute furrows which correspond to the depressions between its papillæ and cross each other in all directions. These furrows are especially noticeable on the back of the hand, where they divide the surface into a multitude of irregular triangular and quadrilateral spaces. Larger ones, in conformity with the folds of the skin, are found on the face and neck, and near the joints. The surface of the skin is pierced by millions of minute openings—the orifices of the hair-follicles, and of the sebaceous and sudoriparous ducts. Hairs, coarse or fine, are found on every region of the body except the clitoris, the glans penis, the inner surface of the prepuce and labia majoræ, the palms of the hands, the soles of the feet, and the dorsal surfaces of the last phalanges. The color of the skin depends upon the amount of pigmentary matter it contains. The characteristic racial differences, as well as the variations of complexion of individuals of the same race, are due to a more or less abundant supply of this material. In the Caucasian race it is usually deposited in the greatest quantity in the scrotum and labiæ, and in the areolæ of the nipples.

The skin varies in thickness in different parts of the body. It is thinnest on the eyelids and prepuce, and thickest on the back, buttocks, palms, and soles. Its attachment to the structures beneath it varies with the density of the areolar tissue and the amount of adipose matter present. In those portions of the body where the areolar tissue is compact, or where there is an abundance of fat, as on the pubes, perineum, and back, the connection is firm and close. Where great mobility is desirable, as around the joints and on the eyelids, the areolar tissue is loose, and contains little or no fat. In these regions the attachment is comparatively slight, and the soft and pliant skin can easily be raised into folds between the fingers. Turner and other writers of the eighteenth century record the case of a Spaniard whose skin was so loose and elastic on the right side, that it could be drawn out from his body for twelve inches in any direction. An analogous case is that of Herr Haag, a native of Nuremberg, who has recently been on exhibition in the cities of Europe and the United States as "the India-rubber-skin man." This abnormality is only explicable on the supposition that there is a large increase of elastic tissue in the corium, and an absence of any connecting fibres between it and the deeper structures.

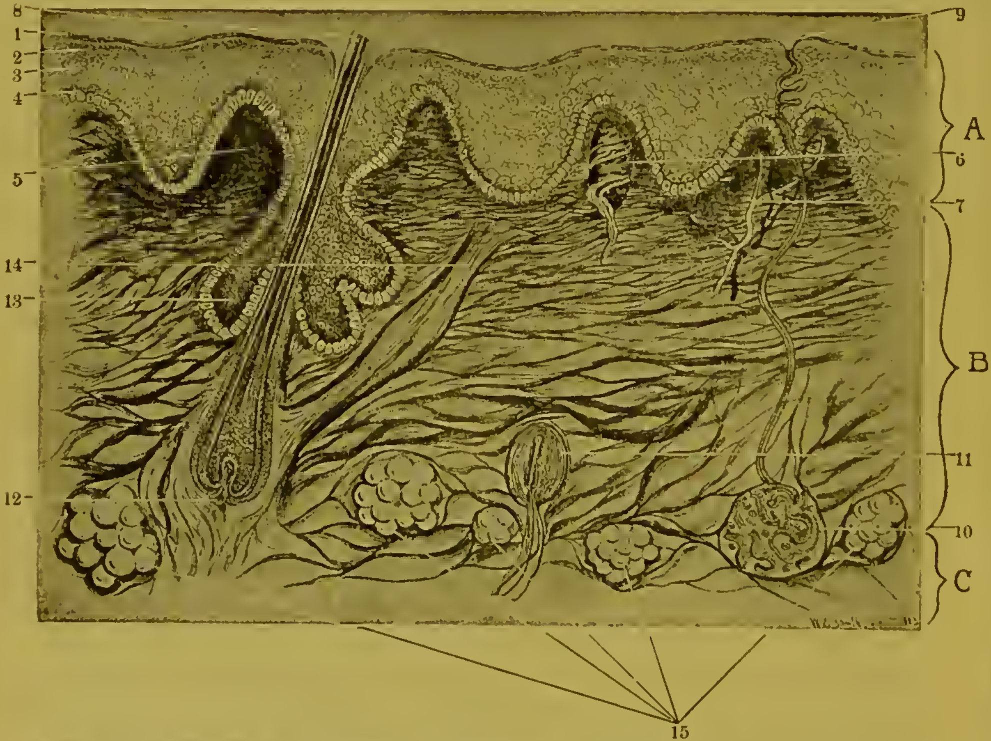

Fig. 1.—A. Epidermis. B. Corium. C. Subcutaneous connective tissue. 1. Corneous layer. 2. Stratum lucidum. 3. Granular layer. 4. Mucous layer. 5. Papilla. 6. Tactile corpuscle. 7. Capillary in the papilla. 8. Hair-shaft. 9. Excretory duct of sudoriparous gland. 10. Sudoriparous or sweat gland forming the coil. 11. Pacinian corpuscle. 12. Papilla of the hair. 13. Sebaceous or sebiparous gland. 14. Erector-pili muscle. 15. Adipose tissue.

A knowledge of the minute anatomy, as well as of the general structure of the skin, is necessary for a proper appreciation of the changes produced by disease. It is also of importance as a basis for the rational application of therapeutic measures. Some morbid conditions involve the skin in its entirety; others manifest no tendency to spread beyond the part in which they first appear.

The skin is composed of three layers: the epidermis, the corium, and the subcutaneous connective tissue, each of which is formed by the aggregation of a number of primary layers. The line of demarcation between the epidermis and the corium is sharply defined. They can be detached from each other by maceration, and are separated by various morbid processes. The corium and subcutaneous connective tissue, however, merge imperceptibly into each other, the boundary-line between them being merely an imaginary one. The skin is abundantly supplied with blood-vessels, lymphatics, nerves, and muscles, and is also provided with certain special appendages necessary for the performance of its functions, viz., sudoriparous and sebaceous glands, hair-follicles, hairs, and nails. (See Fig. 1.)

The Epidermis.—The epidermis, cuticle, or scarf-skin, is the most superficial portion of the skin. It is a laminated, slightly elastic membrane, composed entirely of epithelial cells and scales. It contains no blood-vessels, and is but scantily supplied with nerves, only a few filaments having been traced to its deeper layers. It covers the corium closely everywhere, and serves to protect that structure from external irritation or injury. It is pierced by the hair-follicles and the ducts of the sudoriparous and sebaceous glands, and is marked by a network of minute furrows which represent the depressions between the papillæ of the corium. The larger furrows found on the face and the neck, and in the vicinity of the joints, correspond to the folds of the skin when not in motion. The epidermis consists of four separate layers: 1. Stratum corneum. 2. Stratum lucidum. 3. Stratum granulosum. 4. Stratum mucosum. The first two layers are frequently considered as one, denominated the

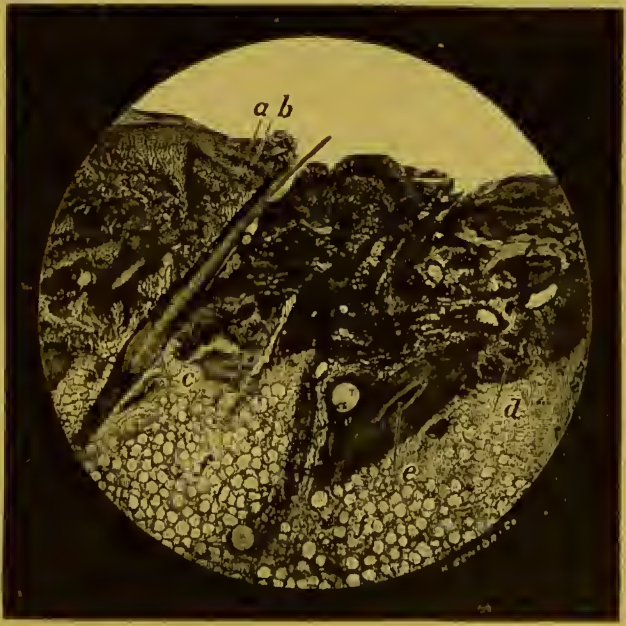

Fig. 2.—Photo-micrograph. Section of skin, magnified seventy-five diameters. *a.* Corneous layer of epidermis. *b.* Mucous layer of epidermis. *c.* Hair in its sheath. *d.* Sweat-gland, from which the larger drawing of sweat-gland in this book was taken. *e.* Hair in sheath cut irregularly. *f, f.* Subcutaneous fat.

horny layer; and the latter two likewise, and styled the mucous layer. This classification is, however, erroneous, and should be discarded. There are four layers, whether viewed from a pathological or a histological point of view.

The epidermis varies in thickness in accordance with the development of its various layers. It is thinnest about the lips and on the face, and thickest upon the palms and soles. The coloring-matter of the epidermis is almost exclusively found in the stratum mucosum.

STRATUM CORNEUM (CORNEOUS LAYER).—This is the external or superficial layer of the epidermis. It is composed of several strata of flattened, transparent cells of various shapes and sizes. The cells of the deeper are polygonal or spindle-shaped in form, and are larger and more distinct than those above them. Some present traces of a nucleus, and can be stained faintly with carmine. The superficial strata consist of flat, polymorphous scales, which become more and more shrivelled in appearance, and curved upon themselves as the surface is approached. They do not contain any nuclei. The stratum corneum varies in different portions of the body. It is thinnest on the lips and face, and thickest on the palms and soles. Its thickness does not depend on the development of the other layers of the epidermis.

STRATUM LUCIDUM.—The stratum lucidum, called also the stratum of Oehl, after its first discoverer, is the narrow, transparent layer of compressed cells found immediately beneath the stratum corneum. According to Unna* it contains from four to six rows of cells that in fresh, unstained sections, attract attention by reason of their extreme transparency. They are derived from the cells of the granular layer by the loss of that material, and the increase in transparency of the rest of the cell-substance. Each cell contains a staff-shaped or flattened nucleus. Unna believes that this layer is merely a portion of the stratum corneum, and suggests that the title of stratum lucidum be abandoned, as incorrect and misleading.

STRATUM GRANULOSUM.—The granular layer, or layer of Langerhans, consists of two or three rows of flattened, nucleated cells, which are situated immediately beneath the stratum lucidum. They were at one time supposed to be true connective-tissue corpuscles, because of their spindle-shaped appearance when a vertical section of this layer is made. Their long diameter is parallel to the surface of the epidermis. They are characterized by the presence around their nuclei of a number of minute granules of a substance known as eleidin, which, according to Ranvier, is a material intermediate in nature between protoplasm and keratin. It is most abundant near the nuclei of the cells, and diminishes or disappears as the periphery is approached. Unna regards the presence and formation of the granules of this layer as a necessary step in the process of the development of the stratum lucidum and the stratum corneum. He believes that the color of the skin in the white race is also dependent upon the presence of these granules. They refract the light very strongly, and therefore appear white in a reflected light. Prior to their formation the epidermis of the fœtus is so transparent that the blood-vessels of the corium can be seen distinctly beneath it.

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* "The Anatomy and Development of the Skin," in Ziemssen's Handbook of Diseases of the Skin.

STRATUM MUCOSUM; STRATUM MALPIGHII; RETE MUCOSUM; RETE MALPIGHII.—The stratum mucosum, or mucous layer, called also the layer of Malpighi, is that portion of the epidermis which lies immediately above the corium; it is separated from it by a thin basement membrane. It adapts itself closely to the upper surface of the corium by means of its interpapillary processes which fit into the depressions between the papillæ. It is composed of several layers of nucleated cells, which vary in size and shape. Those of the deepest layer are small and columnar, with oval nuclei, and are arranged with their long axes perpendicular to the surface of the corium. They are composed of granular protoplasm surrounding the nuclei, and have no distinct cell-wall. According to Biesiadecki and Henle, the outlines of the individual cells of this layer are obliterated occasionally, so that the surface of the corium appears to be covered with a mass of protoplasm containing a number of nuclei. The cells of the next two or three rows are larger and cubiform, or more or less polygonal, and the nuclei are spherical, well defined, and homogeneous in structure, are inclosed in a cell-wall or membrane, and contain granular and pigmentary matter. The cells of the superficial strata are still larger and more granular in appearance, but become flattened as they approach the surface, so that their long axes finally become parallel to the general surface of the skin.

All the cells of the stratum mucosum, except the columnar of the internal row, are connected with each other by means of a series of minute fibrils of protoplasm. Schultz, who was the first to discover these connecting filaments, believed they were formed by the union of projecting processes from adjacent cells. In accordance with his view, this layer is spoken of as the prickle layer, and the filaments are referred to as the prickles of Max Schultz. These prickles or filaments vary in size in different parts of the body. Robinson says they are most distinct where the development of the mucous layer is perfect, and they are thicker and longer in the upper than in the lower strata. They are also found in the stratum granulosum, but are not present in the stratum lucidum. They are true connecting filaments, and, as asserted by Unna, are to be regarded as a system of protoplasmic fibrils which permit the free circulation of nutritive material through their interspaces, and effect a firm, but not unalterable, connection between adjacent cells.

Wandering cells, or lymphoid corpuscles, are occasionally found in this layer, especially in the lower and middle strata. Their number is small, however, in the normal healthy state, but they are considerably increased in various pathological conditions.

The stratum mucosum in color ranges from yellowish white to brown or black, dependent on the race and region of the skin. This is due to differences in the amount of pigmentary material present in the cells of this layer. Kölliker remarks that when the skin is only slightly colored, the pigment matter is absent from all but the most internal strata of cells. Darker shades are produced by its deposition and diffusion among two, three, or more strata.

The Corium.—The corium, derma, cutis, or cutis vera, is the most important and most highly organized portion of the skin. It is composed of a dense network of bundles of white fibrous tissue with which muscular elements and yellow elastic fibrillæ are closely interwoven. The interstitial spaces, which are much smaller than those of the subcutaneous connective tissue, diminish in size as the surface is approached. They contain lymphoid corpuscles as well as true connective-tissue cells. Fat-globules are also present.

This layer varies in thickness in different individuals and in different parts of the body. It is thinnest on the eyelids, the glans penis, clitoris, prepuce, and inner surface of the labiæ majoræ, where, according to Krause, it ranges from 0·27 to 0·56 mm. On the face, the scrotum, and the areola of the nipples, it varies from 0·68 to 1·13 mm. On the forehead it is 1·50 mm. Its average depth on the general surface of the body is between 1·69 and 2·26 mm. It attains its greatest thickness on the sole of the foot, the back, and the nates, where its continuity is broken by the projection of a number of columns of fat, which extend from the subcutaneous connective tissue to the base of the follicles of the lanugo. In these regions it is frequently 5·5 mm. deep. Warren * observes that the projecting columns of fat are of material importance in supplying nutrition to the fine hairs. They also increase the flexibility of the dense integument, furnish a channel for the passage of the vessels of the skin, and serve as an outlet for various morbid products in disease. The corium is richly supplied with arteries, veins, lymphatics, nerves, and muscular tissue. It is traversed by the follicles of the deep-seated hairs and the ducts of the sudoriparous glands. The sebaceous glands and the follicles of the finer hairs are embedded in its middle third.

The corium is divided for facility of description into the upper or papillary layer, and the lower or reticular layer. This division is, however, mainly an arbitrary one, and is based principally upon the greater size of the connective-tissue bundles in the lower strata and the consequent looseness of the network formed by them. The superficial portion is separated from the epidermis by a thin basement membrane, but the deeper one merges imperceptibly into the subcutaneous connective tissue beneath.

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* "The Thick Cutis Vera," by J. Collins Warren, M. D, in Satterthwaite's Manual of Histology.

Pars Reticularis.—The reticular layer is the lower portion of the corium. It is composed mainly of bundles of white fibrous tissue, which decussate at first without division, forming a distinct network. The largest meshes are filled with fatty tissue, and contain blood-vessels, lymphatics, and nerves. They also give passage to the deep-seated hair-follicles and the sudoriparous ducts. The smaller interspaces contain connective-tissue corpuscles and wandering cells. The bundles of connective tissue cross each other obliquely, and divide and subdivide as they proceed upward until they reach the papillary layer, which is formed by the interlacement of numbers of single fibrillæ.

Pars Papillaris.—The papillary layer is the superficial or external portion of the corium. It is separated from the epidermis by a distinct basement membrane, but is only distinguishable from the reticular layer by the greater density of its structure. Its fibres are intricately bound together, and its interfascicular spaces are, consequently, so very minute, that in many places it presents a perfectly homogeneous appearance. Its upper surface is roughened by the projection of millions of small but distinct prominences or elevations, which are termed the papillæ of the corium, and from which this layer derives its name. They contain the terminal expansions of the cutaneous vessels and nerves, and are the most important constituents of the corium. They are ordinarily cylindrical or conical in form, but vary in size and shape, and also in number, in the various regions of the body. Occasionally they are club-shaped, or square and flattened. Those that arise from a separate base are termed simple papillæ, in contradistinction to the tufts of five or six which spring from a common trunk, and are therefore called compound papillæ. They may be again divided, according to their functions, into vascular and nervous papillæ. The former are provided with an afferent arteriole or capillary plexus and an efferent vein. The latter contain medullated nerve-fibres and one or more tactile corpuscles. In some rare cases a papilla has been observed to contain both nerves and blood-vessels. This anomaly is supposed to be due to the fusion of two distinct papillæ.

The papillæ are most numerous and most perfectly developed on the palms of the hands, the tips of the fingers, and the soles of the feet, where they are arranged in a series of circular or elliptical ridges. Meissner observed four hundred upon a square line of the end of the finger, and Weber found one hundred and fifty to two hundred single, and eighty-one compound papillæ upon a square line of the palm of the hand. They are also present in great numbers upon the nipple, the clitoris, the glans penis, the labia minora, and also on the prolabium. The smallest papillæ are found on the face, especially upon the eyelids, brows, nose, cheeks, and chin. Those on the general surface of the body are also small in size. The total number of the papillæ is very great. Sappey says that there are over sixty thousand to the square inch in many regions of the body. An estimate, based on this statement, would make the number on the whole surface of the body vary between one hundred and fifty and two hundred millions.

The Subcutaneous Connective Tissue.—This portion of the skin is composed principally of bundles of fibrous connective tissue, which rise obliquely from the periosteum or from the superficial fascia, and merge imperceptibly into the substance of the corium. These bundles vary in size, but are cylindrical in form, and interweave with each other, forming a series of networks with well-defined interfascicular spaces. Adipose tissue is found in more or less quantity in these spaces, constituting the *panniculus adiposus*, upon which the plumpness of the body depends. According to Biesiadecki,* the individual fat-globules are composed of minute drops of oil, each of which is inclosed in a delicate membrane. They are sometimes round or oval in form, but more frequently polyhedral from pressure. The membrane or cell-wall is so distended by its contents that it is not discernible until they have been extracted by alcohol or ether. The fat-globules are aggregated into masses or lobules of varying size. Each lobule is provided with an afferent artery, a capillary plexus, and one or more efferent veins. Several lobules at times unite to form an acinous-like structure which is surrounded by a sheath of connective tissue. Large quantities of fat are found beneath the skin of the palms and soles, the back, the buttocks, and the mammary glands. Warren † has shown that in the thickest portions of the skin, columns or pillars of fat extend from this layer in an oblique direction through the lower two-thirds of the corium, and terminate at the base of the follicles of the lanugo. These columns are almost continuous in direction with the erector-pili muscles, to which they are also attached. They convey blood-vessels and lymphatics to the corium, and occasionally contain sudoriparous glands. Their function has not been definitely ascertained. Warren believes that they furnish flexibility to the otherwise dense and unyielding integument, and that they assist in the action of the erector-pili muscles, and are essential to the nutrition of the lanugo. In health they furnish a channel for the blood-vessels and lymphatics, and in disease they provide an outlet for various morbid products.

The quantity of fat in the subcutaneous connective tissue varies greatly. It is usually found in larger proportion in women and children than in men, and lessens with advancing age. In cases of starvation, and in all diseases attended with waste of tissue, the contents of the fat-globules disappear; but the cell-walls remain, and are rapidly refilled when health returns. Obesity consists in an over-production and abnormal deposition of fat.

---

* "The Section of the Skin," by Professor Alfred Biesiadecki, in Stricker's Manual of Histology.

† *Loc. cit.*

Some portions of the body, as the eyelids, penis, scrotum, and labiæ minoræ, are destitute of fat. The interfascicular spaces of the subcutaneous connective tissue in these regions are traversed by fine connective-tissue bands or single fibrillæ. The interstices between the fibrillæ and the primary bands vary in size under different circumstances, and in proportion to the amount of fluid in the tissues. In some pathological conditions they are almost obliterated, while in others they are greatly increased in size.

The cells of this layer consist of fixed or true connective-tissue cells, and lymphoid corpuscles or wandering cells which have migrated from the blood-vessels. The former are more or less spindle-shaped, and send processes between the primitive bundles of white fibrous tissue. These processes gradually develop into yellow elastic fibrillæ. The lymphoid corpuscles are most abundant in the vicinity of the blood-vessels and glands, where they are similar in size and appearance to the white corpuscles of the blood. As they wander farther into the tissues, they lose their circular form, and become somewhat spindle-shaped also.

The sudoriparous glands and the bases of the deep-seated hair-follicles are imbedded in the subcutaneous connective tissue. It also contains lymphatics, nerves, and blood-vessels. Some of the nerves terminate in Pacinian corpuscles. The larger lymphatic vessels have a markedly transverse muscular structure, and are surrounded by a minute vascular network. The blood-vessels are of large size, and after supplying the hair-follicles, sudoriparous glands, and fat-lobules, send a number of branches to the corium.

The Sweat Glands.—The sudoriparous or sweat glands are small, round or oval-shaped bodies, which are imbedded in the subcutaneous connective tissue, and open on the surface of the epidermis by means of the sudoriparous ducts. They are yellowish or yellowish-red in color, and vary in size in different parts of the body. They are smallest on the eyelids, the nose, and the pinna of the ear, where they range from $\frac{1}{200}$ to $\frac{1}{120}$ of an inch in diameter; and largest on the areola of the nipple, the base of the scrotum, and in the axilla, where they sometimes attain a diameter of one-tenth of an inch. A sudoriparous gland consists essentially of a number of convolutions of a minute tube which commences with a blind extremity, and is coiled upon itself several times to form a more or less globular mass which is the body of the gland. The tube then ascends in a perpendicular or oblique direction to the free surface of the epidermis, and becomes the duct or excretory canal of the gland. It passes through the lower portion of the corium in a direct or slightly flexuous manner, and, emerging between two papillæ, pursues a more or less tortuous course through the layers of the epidermis, and finally terminates in a funnel-shaped opening or pore. Where the epidermis is thick, as on the palm of the hand and the sole of the foot, the tortuosity of the ducts is marked, and the pores are large in size.

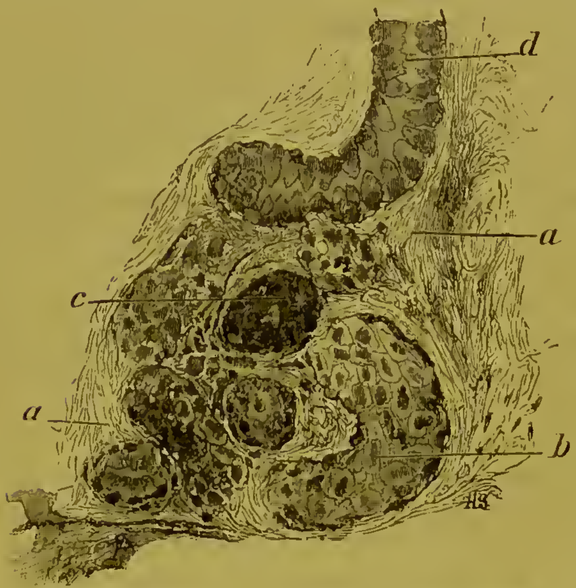

Fig. 3.—Sweat-gland. Drawn from a specimen beneath the microscope magnified 450 diameters. The section is cut right through the gland. *a.* Connective tissue supporting gland. *b.* Gland. *c.* Gland cut transversely. *d.* Duct going off.

Kölliker's investigations lead him to believe that the sudoriparous glands first appear in the fifth month of embryonic life as perfectly solid processes of the stratum Malpighii which gradually elongate, and, penetrating the deeper structures, begin to coil upon themselves. They are therefore to be regarded as simple involutions of this layer, which, by a continual process of cell-multiplication, grow deeper and deeper into the corium and subcutaneous connective tissue, become convoluted, and divide into the glands proper and their ducts, while at the same time, either by a process of liquefaction of their central cells or by the excretion of a fluid between the cells, a lumen or cavity is formed. Klein has observed that both the gland and its duct are lined with a delicate cuticle which is especially marked in the duct and in the commencement of the coiled tube. In the epidermis the lumen bordered by this cuticle is all that is present of the sudoriparous duct. Unna insists that the duct ends in reality at the surface of the corium, and that the tortuous canal which appears to be its continuation through the epidermis does not belong to it alone, but is also the receptacle for the exudations from the interstices of the epidermis.

The duct proper has two other coats—the external one, or limiting membrana propria, which is continuous with the basement membrane of the surface of the corium, and the middle or epithelial coat, which is continuous with the deeper layers of the stratum Malpighii, and is composed of two or three rows of nucleated polyhedral cells.

The proximal portion of the coiled tube which forms the body of the gland is identical in size and structure with the sudoriparous duct, with which it is directly continuous. The remaining or distal portion is much larger in diameter, and differs, according to Klein and Kölliker, in these essential respects, that its middle or epithelial lining consists of but one layer of transparent columnar cells, and that there exists between it and the limiting membrana propria a layer of non-striped muscle-cells which are arranged parallel with the long axis of the tube. This distal portion of the tube is of great length in the glands of the palms and soles, the scrotum, the nipple, the scalp, the axilla, and other regions of the body, and its epithelial cells contain a considerable number of granules.

Each sudoriparous gland is surrounded by an investing sheath of connective tissue, interspersed with fat-cells, which supports the vessels that supply the gland, and binds the convolutions of the tubes closely to each other. Connective-tissue fibres with numerous cells accompany the duct, running parallel to it through the corium, and as a rule there are also two accompanying small blood-vessels (Biesiadecki). The nervous supply of the sudoriparous system has not yet been demonstrated. Langerhaus, however, claimed, years ago, to have found traces of a nervous structure in the inter-epithelial spaces of the outer coat of the duct.

Sudoriparous glands are found in great numbers in every portion of the body except the glans penis, the clitoris, and the red border of the lips. Their distribution varies widely, however, in different regions of the body. In the axilla they form a continuous layer beneath the corium. Krause states that there are 2,736 in a square line on the palm of the hand, 2,685 in the same space on the sole of the foot, 1,490 on the back of the hand, 1,258 on the forehead, 1,136 on the chest and abdomen, 1,123 on the inside of the arm, 566 on the inside of the thigh, 548 on the cheeks, and 417 on the neck, back, and buttocks in every square inch. The same observer estimated the total number of these glands on the body of an adult of average size to be 2,381,248. As the length of an untwisted tube is about one-fourth of an inch, the total length of the tubing through which the perspiratory function is carried on is almost fifty thousand feet, or over nine miles.

The secretion of the sudoriparous glands varies in quality and quantity according to their size and situation, and a number of other normal and abnormal circumstances. The small glands secrete a clear, watery fluid without any granular matter. The larger glands, especially those of the axilla, secrete a thicker fluid containing numerous fat-cells, and granules with free nuclei, which are derived from the epithelial cells lining the interior of the gland. This fact led Meissner thirty years ago to believe that the real function of the sweat-glands was to furnish a material for the oiling of the skin. This view was not accepted then. Unna has again revived it, and insists upon its correctness. He claims that the secretion of the sebaceous glands is only sufficient to lubricate the interior of the hair-follicles with which they are connected, and that the sweat-glands exist solely for the purpose of providing an oily material for the surface of the skin. He also believes that the perspiratory fluid which is generally supposed to be secreted by the sweat-glands is in reality an exudation from the interstices of the epidermis, therefore they should be entitled "coil-glands" in future. Further research will, however, probably show that they are necessary for the proper performance of both functions.

The ceruminous glands of the ear are similar in appearance and structure, and allied in function to the glands of the sudoriparous system. They do not exist in the whole external auditory meatus, but only in the cartilaginous portion (Kölliker), between the lining membrane of the ear and the cartilage. They form a continuous yellowish-brown layer, which is occasionally visible to the naked eye. Their secretion is merely a modification of that of the sudoriparous glands. The cerumen or wax of the ear is a combination of the secretions of the true ceruminous glands with that of the sebaceous glands of the auditory meatus.

The circum-anal glands of Gay, which form a zone around the verge of the anus, are to be regarded as a part of the sudoriparous system also. They are identical in structure with the coil-glands of the other portions of the body, and differ from them in size only.

The Sebaceous Glands.—The sebaceous or sebiparous glands, called also the glands of the hair-follicles, are simple or compound racemose glands, which are found in every portion of the skin except on the clitoris, the glans penis, the palms of the hands, the soles of the feet, and the dorsal surfaces of the last phalanges of the fingers and toes. They are invariably situated in the upper or middle part of the corium, and do not extend to the subcutaneous connective tissue. They are most abundant upon the hairy portions of the body, and are connected as a rule with the hair-follicles into which their secretion is discharged. According to Sappey, they may be divided into three distinct groups. The first group comprises the glands of the scalp, the beard, the axilla, the pubes, the labia majora, and the scrotum. The hairs in these regions are coarse and fully developed, and each follicle is provided with two, three, or more sebaceous glands, which may properly be regarded as appendages of the hair-follicles.

The glands of the second group are larger in size and more complex in structure, and are connected with the lanugo. The duct of the gland is, however, so much wider than the lanugo-follicle that the relation may be reversed, and the hair considered to be an appendage of the gland. The glands of this group are found mainly upon the forehead, nose, cheeks, and areola of the nipples. A few are also present upon the genitalia, and various portions of the chest, the abdomen, and the upper and lower extremities. Piffard says that acne is almost exclusively an affection of this class of glands.

The third group is small in number, and comprises those which open directly upon the surface of the skin, and are not connected in any way with the hair-follicles. They are found only on the internal surface of the prepuce and behind the corona glandis in the male, and upon the surface of the nipple, the vestibule, and the labia minora in the female.

The sebaceous glands are whitish in color, and vary in size in different portions of the skin. The largest are found on the eyelids (Meibomian glands), the mons veneris, the scrotum, the labia majora, in the axillary and anal regions, and on the areola of the female nipple (glands of Montgomery), where they frequently attain an enormous size. Those of the scalp are smaller in size, but greater in number. W. Krause has estimated that there are over eighty thousand hair-follicles on the average adult head, each of which is provided with two or more of these glands. Some of the coarse hairs on the genitalia are surrounded by a labyrinth of glands; seven or eight being frequently connected with each hair-follicle. Each gland is composed of from two to twenty acini or lobules, and may be divided into a body or gland proper, and an excretory duct. In structure it consists of an external membrana propria and an internal epithelial lining of several layers of nucleated cells, which is practically a continuation of the outer root-sheath of the hair-follicle. The external membrana propria is identical and continuous with the basement membrane of the surface of the corium, and is surrounded by an investment of connective tissue containing blood-vessels, lymphatics, and nerves. The cells of the epithelial lining of the gland proper are almost identical in size and arrangement with those of the stratum Malpighii. Those of the first layer are imbedded in the basement membrane, and are small, granular, and columnar, with spherical or oval nuclei. Next to this, and filling the entire space of the acini, are large polyhedral cells with spherical nuclei, and contain a variable amount of fat and fat-globules. The cells nearest the centre of the alveoli are the largest in size, but become shrivelled as they approach the beginning of the duct. The cavity, or centre of the gland, contains a grumous pulp formed of free fat, fat-globules, and epithelial *débris* floating in a watery fluid. This is termed sebum. The duct is similar in structure to the body or gland proper. It is composed of an external basement membrane, an internal epithelial lining, and a central cavity or lumen through which the sebum is discharged. It opens into the hair-follicle at an acute angle at its upper third; the gland proper lies in the corium nearly on a level with the middle third of the follicle. The ducts of the glands that open directly upon the surface of the skin receive an additional layer of cells from the stratum corneum of the epidermis.

The sebaceous glands begin to be developed at the end of the fourth month of fœtal life as small solid projections from the outer root-sheath of the hair-follicles. They gradually attain their definite size and shape by a process of cell-multiplication; and an internal cavity or lumen is finally formed by the fatty metamorphosis of the central layer of cells.

The Hairs.—Hairs are slender cylindrical structures composed of modified epithelial tissue. They are imbedded in depressions of the skin known as the hair-follicles or sheaths, and are developed from a minute papilla which projects from the base of each follicle. They are found upon every portion of the skin except the upper eyelids, the lips, the palms and soles, the clitoris, the glans penis, and the dorsal surfaces of the last phalanges of the fingers and toes. They vary in length and thickness in different regions of the body, and may be divided into four groups. Those of the first group are long and soft, and are found only on the scalp. Those of the second group are long and coarse, and are found in the beard and whiskers, and in the axillary and pubic regions. The third group comprises the short coarse hairs of the eyebrows, eyelashes, the nostrils, and the external auditory meatus. The fourth group consists of the delicate lanugo, which are present on the face, trunk, and other portions of the body. The size of the hairs is further influenced by age and sex. They are thicker in general in adult age than in childhood, and in the female than in the male.

Their number varies considerably, dependent upon the region of the skin and the individual. According to Whitoff, there are 293 in a quarter of a square inch on the scalp, 39 in the same space on the chin, 34 on the pubes, 23 on the forearm, and 19 in the same space on the front of the thigh. Wilson estimated the total number on the scalp to be 120,000, but Krause and other observers say there are only 80,000. This discrepancy may be due in part to the color of the hair which was the subject of calculation. Light hairs are placed more closely together, and are more abundant, as a rule, than dark ones. They vary in color both in race and individual. The different shades depend upon the amount of pigment material which is present in the cells of the hair, and in the interstitial cement substance which binds them together. In the dark there is an abundance of the interstitial pigment-granules. In the red the pigment material is confined to the substance of the hair-cells. White hairs are destitute of all pigment. Grey contain bubbles of air in their superficial layers.

The hairs are so elastic that they can be stretched to nearly a third more than their natural length, and if the tension be not too long continued they will retract to very near their normal size. Owing to their fibrous structure they are very strong, and will bear a weight of from one to three pounds without breaking. They absorb moisture readily, and part with it freely. They are therefore either dry and brittle, or moist and soft, in accordance with the amount of fluid secreted by the skin and the amount of moisture present in the atmosphere. They are identical in structure with the horny layer of the epidermis, and like it they contain neither blood-vessels nor nerves. Their nourishment is derived from the cells of the papilla at the base of the hair-follicles.

They grow more rapidly in youth than in old age, and in summer than in winter. Frequent cutting also hastens their development for the time. Their rate of growth varies from five to seven inches or more in a year. Each hair has a certain limit, after attaining which it remains stationary for a while, and then becomes detached from its papilla and expelled from the follicle. Those of the scalp when left uncut frequently reach a length of six feet before this process of degeneration and extrusion occurs.

A complete living hair consists of a free portion or shaft, which extends beyond the surface of the skin, an inclosed portion or root, which is contained within the follicle, and an expanded portion or bulb which rests upon the hair-papilla at the base of the follicle.

The hair-papilla is a small, pear-shaped or oval body, which arises from the base and projects into the cavity of the hair-follicle. It is about twice as long as it is broad, and is composed of connective-tissue fibres, between which are found numbers of round nuclei and spherical nucleated cells. It is identical in structure with the other papillæ of the corium, and is continuous at its origin with the fibres of the outer layer of the hair-follicle. Its upper surface is covered by a thin basement membrane, which is reflected from the inner layer of the follicle, and which separates it from the hair-bulb. It contains two arteries (Biesiadecki), two or more veins, and some medullated nerve-fibres.

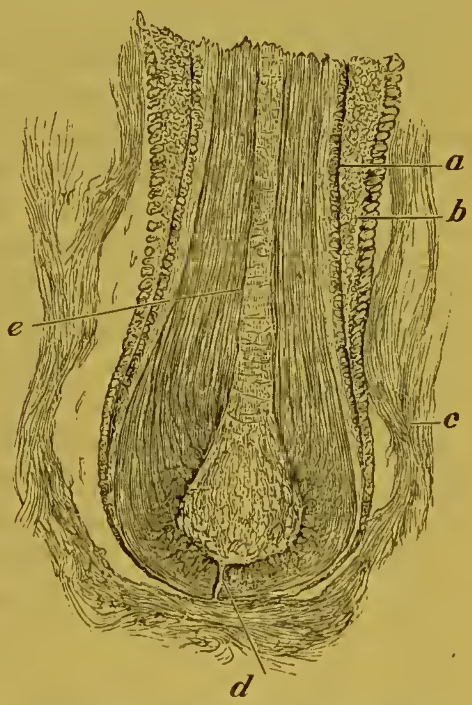

FIG. 4.—Magnified hair: *a*. Internal root-sheath, consisting of two layers. *b*. External root-sheath. *c*. Hair-follicle slightly torn in places. *d*. Where blood-vessel enters hair-bulb. *e*. Hair showing internal and fibrous structure.

The hair-bulb is the terminal expansion of the root of the hair. It surrounds the papilla, and completely fills the lower part of the follicle. It is composed of several layers of polyhedral nucleated cells, which resemble the cells of the rete Malpighii. They are united to each other by cement substance, and are continuous with the cells of the outer root-sheath. The layer which is situated on the basement membrane immediately above the papilla is composed entirely of short columnar cells. According to Klein, the cells of this layer are in an active state of multiplication and proliferation, reproducing themselves continually. As this process goes on, the cells of the other layers of the hair-bulb are gradually forced upward into the cavity of the follicle, where they form the cells of the root of the hair. They also change in shape, becoming flattened and fusiform, constituting the cells of the hair-substance, except in the centre, where they remain polyhedral as those of the medulla of the hair. The peripheral cells which compose the inner root-sheath retain more or less of their original form.

The hair-root proper consists of the medulla of the hair, the hair-substance, and the cuticle of the hair. The medulla is composed of several rows of polyhedral cells which occupy the centre of the hair, and extend from the bulb to very nearly the point of the shaft. Kölliker states that they contain neither fat nor pigment granules, but derive their color from the presence of a variable number of minute vesicles which are filled with air. The lanugo and immature hairs have no medullary cells whatever.

The hair-substance, or cortical substance, is composed of several layers of flat, elongated fibres, which form the greater part of the hair and give it shape and consistency; they vary in length and breadth, and are held together by an albuminous cement; they are longitudinally striated, and contain a variable amount of pigment matter. Each fibre consists of two or more flattened epithelial scales, which present a remnant of a nucleus, but are so closely united one to the other that they can only be separated by strong acids or alkalies. Air-bubbles are present in considerable quantity in the spaces between the hair-fibres. The cuticle of the hair is a thin, transparent membrane which completely invests the hair, and is intimately united with the hair-substance on the inside, and the cuticle of the inner root-sheath on the outside. It arises from the neck of the papilla, and extends from the bulb along the entire length of the hair. It is composed of a single layer of non-nucleated hyaline scales, which are frequently round or columnar in the portion surrounding the bulb, but become elongated and fusiform in the root and shaft. They are arranged transversely, and overlap each other

FIG. 5. — Human hair magnified, showing cortical substance and medulla.

like the tiles on a house or the scales on a fish. The cuticle presents more or less marked projections or serrations, according to the degree in which its scales overlap.

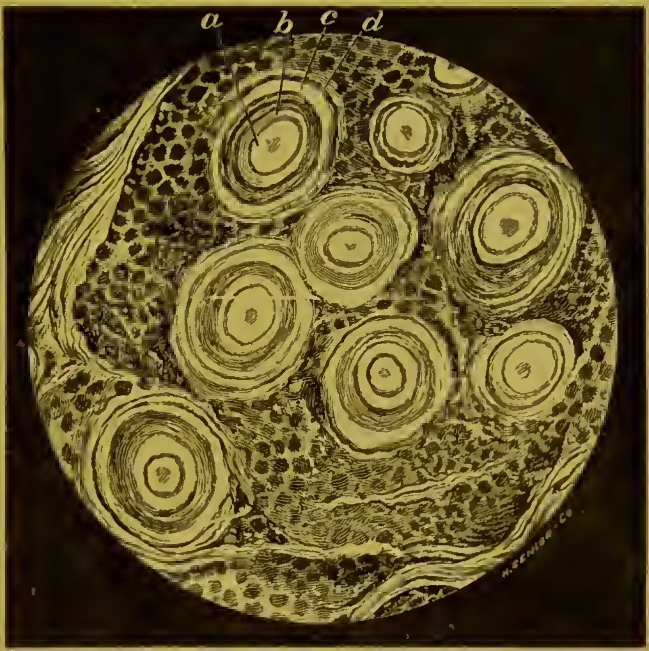

Fig. 6.—(Photo-micrograph.) Transverse section through hairs magnified 75 diameters. *a.* Hair. *b.* Internal root-sheath. *c.* External root-sheath. *d.* Hair-follicle.

The shaft of the hair, or the part projecting beyond the surface of the skin, is identical in structure with the root of the hair.

The Hair-Follicles.—The hair-follicles, or hair-sacs, are flask-shaped depressions of the epidermis and corium which closely envelop the roots of the hairs. Each follicle commences on the external surface of the skin by a funnel-shaped opening or mouth, and passes in an oblique or slightly curved direction through the corium into the subcutaneous connective tissue. It terminates in a bulbous expansion which is invaginated over the papilla of the hair. The narrowest portion of the follicle is called its neck, and is situated just below the upper surface of the papillary layer of the corium. The ducts of one or more sebaceous glands empty into the follicle at this point. The follicles of the lanugo do not penetrate as deeply into the subcutaneous connective tissue as do those of the coarser hairs, and frequently do not extend below the deeper portions of the corium. The hair-follicles vary considerably in diameter, and also in number, in the different regions of the body, but agree in their general structure.

Each follicle consists of an external, fibrous vascular portion or hair-follicle proper, and an internal epithelial portion, which immediately surrounds the root, and is therefore usually termed the root-sheath.

The external portion, or hair-follicle proper, is composed of an external, a middle, and an internal layer.

The external layer (the external fibrous sheath of Kölliker) is the thickest and most important portion of the follicle. It consists of compact connective-tissue fibres which run parallel with the long axis of the follicle, and which are intimately united with the fibres of the corium above. It merges externally into the surrounding fibrous tissue, and terminates below in an intricate network which envelops the papilla of the hair. It contains a minute artery and vein (Biesiadecki), and also some nerve-fibres, which divide dichotomously.

The middle layer (the internal fibrous sheath of Kölliker) is composed of a single layer of transversely or circularly arranged spindle-shaped cells with long, narrow nuclei; they resemble, and are generally considered to be, smooth muscle-cells. They line the whole interior of the body of the follicle, but do not extend above its neck. Kölliker says that this layer contains neither blood-vessels nor nerves. The internal layer is also called the hyaline membrane and glassy or vitreous membrane. It consists of a delicate, transparent membrane, which lines the whole interior of the follicle, and is reflected over the surface of the hair-papilla. It is a direct continuation of the basement membrane of the corium, and contains neither vessels nor nerves.

The root-sheath, or the internal portion of the hair-follicle, is continuous with the lower strata of the epidermis, and is made up of an outer and an inner layer. The outer root-sheath is a prolongation of the stratum Malpighii, with which it is identical in structure and arrangement. It is composed of an external layer of columnar cells, next to which are found several rows of polyhedral cells. Its inner wall is formed by one or more rows of flattened, nucleated scales. It extends along the entire inner surface of the follicle, but is thinner at the neck than in the body, and becomes continuous at the base with the cells of the hair-bulb. There are no blood-vessels in the outer root-sheath; but, according to Langerhans, it contains a few nerve-fibres similar to those which are found elsewhere in the stratum Malpighii.

The inner root-sheath is a delicate membrane which is closely connected externally with the outer root-sheath and internally with the cuticle of the hair. It arises from the neck of the papilla at the base of the hair-follicle. and is composed of an outer, or Henle's layer, which is a single layer of elongated cells without nuclei; an inner, or Huxley's layer, consisting of one or two strata of polygonal nucleated cells; and an internal, delicate cuticle. Biesiadecki remarks that the internal root-sheath is developed from the cells of the root of the hair. It terminates at the neck of the follicle, and contains neither blood-vessels nor nerves.

Each hair-follicle is supplied with one or more muscles, the *arrectores pili*, which are composed of several bundles of non-striated fibres. They arise by a series of digitations from the upper portion of the corium just beneath the basement membrane, and, passing obliquely downward, encircle the sebaceous gland, and become inserted in the lower portion of the hair-follicle. They are invariably found on the inner side of the follicle, with which they form an acute angle. Their attachment to the hair-follicles is to be regarded as a relatively fixed point, and that to the corium as a relatively movable one. (Tomser.)

When these muscles contract they depress the papillary layer at various points along the periphery, draw the hair-follicle from an oblique into a vertical position, and, by elevating the hair-follicle and hair above the surrounding surface, produce the condition known as cutis anserina. The hair is at the same time compelled to assume a more upright position, or, as is commonly said, "to stand on its end."

They also, by contracting, compress the sebaceous gland, and assist in the discharge of its secretion.

The hairs begin to develop in the third month of fœtal life, as small, solid, cylindrical projections from the under surface of the stratum Malpighii, which fit into the depressions in the corium. As multiplication and cell-proliferation continue, they penetrate deeper and deeper into the substance of the corium, which becomes condensed around them, and forms the hair-follicle proper, and at its fundus forms the papilla upon which the Malpighian cells are invaginated. The cells around the papilla proliferate rapidly and create the hair-bulb from which the hair proper and the inner root-sheath are gradually developed. The new hair does not penetrate the stratum corneum of the epidermis at once, but burrows its way into that layer in an oblique direction for some time before reaching the surface. The first hairs are always of the lanugo type.

When a hair has reached its limit of existence it undergoes degeneration, becomes separated from its papilla, which atrophies, and a new papilla and a new hair are formed in connection with the old follicle. According to Klein, the lower part of the follicle including the hair-bulb degenerates also, and is gradually absorbed. There is then left only the upper part of the follicle and the hair-root, the fibres of which become fringed at the distal end and lost among the cells of the outer root-sheath, constituting the hair-knob of Henle. After a time a cylindrical outgrowth of epithelial cells projects downward from the outer root-sheath and becomes invaginated over a new papilla. Multiplication and cell-proliferation ensue, and a new hair-bulb and hair are formed, and the old hair is gradually pushed out of the follicle as the new one makes its way to the surface.

The Nails.—The nails are dense, horny, translucent structures which are implanted in the skin of the dorsal surfaces of the terminal phalanges of the fingers and toes. They are quadrilateral in shape, and flattened anteriorly and posteriorly, but curved from side to side. Their anterior border is free; their posterior and lateral borders are inserted in a fold of the skin called the nail-groove. The nail-groove is shallow at its commencement at the tip of the finger, but deepens as it extends posteriorly. That portion of the nail which is inclosed in the groove is called the root of the nail, the remainder constitutes the body of the nail. The nail-bed is that part of the skin upon which the body of the nail is imbedded. It is composed of stratum Malpighii, corium, and subcutaneous cellular tissue. The matrix is the posterior portion of the nail-bed, and is situated immediately beneath the root of the nail. The white line at the base of the nail is called the lunula, and represents the anterior termination of the matrix. The corium of the nail-bed is firmly united by bands of fibrous tissue to the underlying periosteum. It is richly supplied with blood-vessels and nerves, but contains no fat. The subcutaneous cellular tissue is also destitute of fat.

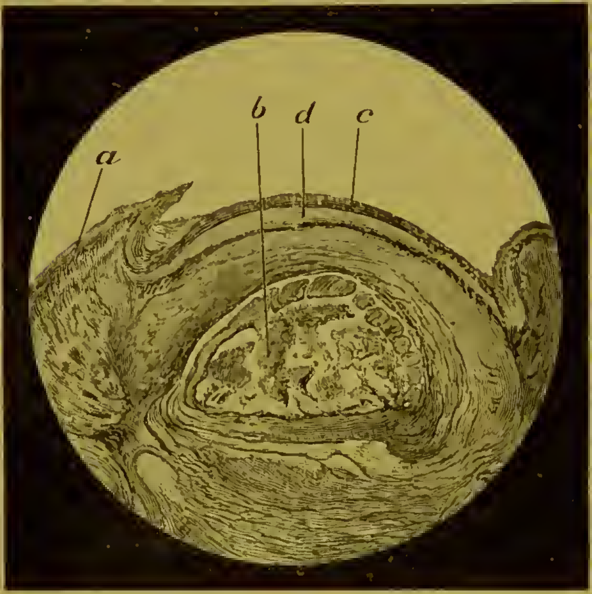

Fig. 7.—(Photo-micrograph.) Section through end of finger of a child: *a*. Skin to the side of the nail, showing epidermis and papillæ. *b*. Bone. *c*. Nail. *d*. Open space.

The nail is composed of a number of layers of flattened homogeneous epithelial scales, some of which contain a remnant of a nucleus. We learn from Klein that it represents the stratum lucidum of exaggerated thickness situated over the stratum Malpighii of the nail-bed. The nail-cells are developed from the matrix, and are gradually pressed forward over the nail-bed.

The nails grow more rapidly in summer than in winter, and in childhood than in old age. They grow continually if cut, but when left uncut they only attain a certain length, after which their development ceases. They begin to form in the third month of fœtal life, and are fully developed by the end of the eighth month. The authority just quoted says they are produced by a rapid multiplication of the cells of the stratum Malpighii, and the conversion of its superficial cells into the scales of the stratum lucidum. The nail is covered by the stratum corneum at this stage, but at the end of the fifth month its margins break through, and by the end of the seventh the greater part has become clear.

Muscles of the Skin.—The skin contains both striated and non-striated muscular fibres. The former are found only in the forehead, nose, cheeks, and neck, where they arise from the subcutaneous cellular tissue, or from the fascia of the superficial layer of muscles, and passing obliquely upward are inserted into the corium between the hair-follicles and the sebaceous glands. The non-striated muscles are more numerous, and are present in every portion of the skin either as compound fibres which run horizontally to the surface and form anastomosing networks, or as bundles of fasciculi which run obliquely upward. According to Unna, they may be divided into the muscular membranes, the arrectores pili, and the proper diagonal muscles of the corium. The muscular membranes are found in the skin of the scrotum, the penis, the mammary areola, and the nipple. They are composed of a network of bundles of muscular fibres, which are deposited in layers in the corium, and run parallel to its surface. They are especially well developed in the areola of the female nipple, where they are arranged in a delicate circular layer which becomes thicker as it approaches the base of the nipple. Kölliker states that this layer is occasionally visible to the naked eye. The muscular fibres of the nipple run in various directions, and form an exceedingly close network which surrounds the lacteal ducts, and constitutes their sphincter.

The arrectores pili are the muscles of the hair-follicles.

The proper diagonal muscles of the corium (Unna) are similar in structure and size to the arrectores pili, but have no connection with the hair-follicles. They arise from the upper portion of the papillary layer of the corium, and running obliquely downward are inserted into its lower portion, or into the reticular layer. When they contract they produce a general condensation of the tissues of the corium. As a result of this action, the blood-vessels are subjected to increased pressure, the blood is driven from the periphery toward the centre, and the papillary layer becomes pale and bloodless. At the same time the sebaceous and sudoriparous glands are compressed, and their contents forced outward along their ducts. The cold sweat of fear is thus produced.

The number of muscular fibres varies in different portions of the skin. They are most abundant in the scrotum, where they form a continuous layer—the dartos. They are also present in great numbers in the prepuce and the skin of the penis. Neumann observes that they are less developed on the flexor than on the extensor surfaces, and occur with diminishing frequency on the perineum, scalp, forearm, thighs, shoulders, forehead, abdomen, axilla, legs, face, and the palmar and plantar and dorsal surfaces of the hands and feet.

The Blood-Vessels of the Skin.—There are no blood-vessels in the epidermis, but the corium and subcutaneous connective tissue are abundantly supplied with arteries, capillaries, and veins. The arteries of the subcutaneous connective tissue are of large size and anastomose freely, forming a plexus from which small branches pass off in all directions to the fat-lobules, sweat-glands, hair-follicles, and muscles of the skin. Other and larger branches proceed directly or obliquely upward to the superficial layers of the corium, and, after sending small branches to the sebaceous glands and the upper part of the hair-follicles, form a second plexus, which is situated directly beneath the base of the papillæ. Millions of minute capillaries arise from this superficial plexus and project into the substance of the vascular papillæ. Each papilla is supplied with a single arterial capillary, which, after pursuing a tortuous course toward the apex, bends over and passes down and out as a venous capillary. These venous capillaries unite in the upper layer of the corium to form a network of minute veins, from which larger ones arise, and passing downward empty into those of the subcutaneous connective tissue.

There are no capillaries, as a rule, in the papillæ which contain nerve-fibres or tactile corpuscles.

All the arteries and veins in the upper portion of the corium consist only of a single layer of endothelial cells, which is re-enforced as they approach the subcutaneous connective tissue by a rudimentary media and adventitia (Unna). Hoyer says that many of the cutaneous arteries in the nail-bed and in the skin of the terminal phalanges of the fingers and toes empty directly into the veins of those parts without the intervention of capillaries.

The fat-lobules, the sebaceous and sudoriparous glands, the hair-follicles, and the cutaneous muscles, are surrounded by a dense network of capillary vessels which terminate in one or more efferent veins. The larger arteries are richly supplied with nerve-fibres.

The Lymphatics of the Skin.—The lymphatic system of the skin is composed of lymphatic vessels proper and lymph-spaces. The former are well-defined circular canals inclosed by their own distinct walls; the latter are interstices in the substance of the skin between the capillaries and lymphatic vessels, and contain a variable amount of fluid. They have no distinct wall, and freely communicate with each other. They are the principal seat of the effusion in all exudative diseases.

Lymphatic vessels are found in every portion of the skin, but they are most abundant in those regions where its attachment to the subjacent tissues is comparatively loose, as on the eyelids and scrotum. They present a distinct lumen, which is bounded by a single layer of elongated, flattened endothelial cells. Those of the subcutaneous cellular tissue have a rudimentary muscular coat in addition, and contain one or more valves. They are arranged in a series of plexuses, which ramify horizontally in the corium and subcutaneous connective tissue. Those of the superficial layer begin with a blind extremity in the upper portion of the papillæ, and unite to form an exceedingly close network of minute vessels, which become larger in calibre as they descend in the substance of the corium. They finally empty by a few large trunks along with those of the deeper layers into the lymphatics of the subcutaneous cellular tissue.

The lymph-spaces of the corium and subcutaneous tissue are identical with the interfascicular spaces, and communicate with the lymphatic vessels of those parts by means of a multitude of small stomata. There are none of these vessels in the stratum Malpighii. The circulation there is carried on entirely through the lymph-spaces, which are the interstices between the so-called prickle-cells. The fat tissue, the sudoriparous and sebaceous glands, and the hair-follicles are supplied with separate lymphatic vessels, and honeycombed with lymphatic clefts and sinuses.

The Nerves of the Skin.—The stratum Malpighii, the corium, and the subcutaneous connective tissue are richly supplied with nerves, but none have yet been discovered in the stratum corneum. The nerves of the subcutaneous connective tissue are large in size, and are directly continuous with the large nerve-trunks of the subjacent structures. They send horizontal branches to the large arteries and Pacinian corpuscles, and then pass obliquely upward to the under surface of the corium, where they divide into a number of minute branches which ramify through the substance of the corium, and are composed of both medullated and non-medullated fibres.

The medullated terminate in the Pacinian and tactile corpuscles, and are consequently most numerous in the regions where those structures are most abundantly developed. The non-medullated are present in every portion of the skin.

The Pacinian Corpuscles.—The Pacinian corpuscles, or corpuscles of Vater, are small, firm, compact, semi-transparent bodies, which are found in large numbers in the subcutaneous connective tissue of the corpora cavernosa, the palms of the hand, and the soles of the feet. They are especially abundant and well developed on the inner surfaces of the terminal phalanges of the fingers and toes. Their total number on each hand and foot varies from 600 to 1,400. They are more or less elliptical or ovoid in form, and are plainly visible to the naked eye. They are composed of from twenty to sixty lamellæ, or capsules, which are arranged concentrically around a cylindrical or elongated central cavity. The capsules consist of an internal layer of nucleated endothelial cells and an external layer of hyaline ground-substance, in which fine bundles of connective-tissue fibres are imbedded. Each Pacinian corpuscle is pierced at its base by a single medullated nerve-fibre, which gradually loses its neurilemma as it passes through the capsular layers, and enters the central cavity as a simple axis-cylinder, which finally divides into two or more branches, terminating in pear-shaped enlargements in the distal portion of the central cavity.

This cavity is lined by a granular albuminous substance containing traces of cell-structure, and which has been supposed to be identical with the medullary substance of the nerve. The lamellæ are developed from, and are directly continuous with, the external layers of the neurilemma. According to Biesiadecki, a large artery enters the corpuscle near its base, and forms a network of capillaries that ramify between its outer lamellæ.

The Tactile Corpuscles.—The tactile corpuscles, called also touch-corpuscles, corpuscles of Meissner, and corpuscles of Wagner, are small round or oval bodies, which are present in the sensory papillæ of the corium. They vary in number in different regions of the body. Meissner has estimated that there are 108 in a square line on the flexor surfaces of the terminal phalanges of the fingers, but only forty in the same space on the second, fifteen on the first, and eight in the palm of the hand. They exist in considerable numbers in the lips and nipples, and are more or less scattered in other portions of the body. They occupy the greater portion of the papillæ in which they are found, and present a transversely striated appearance on section. They are composed of large, flat connective-tissue cells, which are held closely together by a network of delicate fibres, and are surrounded by an investment of fibrous tissue. Each corpuscle is penetrated by a single medullated nerve. Klein states that the nerve first pursues a winding course around the corpuscle, during which its neurilemma becomes fused with the fibrous sheath of the corpuscles. It then loses its medullary substance, and penetrates into the interior of the corpuscle as a simple axis-cylinder. This axis-cylinder further divides into a number of minute branches, which ascend spirally through the substance of the corpuscle and terminate in small pear-shaped or cylindrical enlargements, known as the touch-cells of Merkel.

The genital corpuscles of Krause, or the end-bulbs of Krause, are similar in structure and arrangement to the tactile corpuscles, and are found immediately beneath the epithelium of the penis, clitoris, and vagina.

The Non-Medullated Nerves.—The non-medullated nerves give off branches in the lower portion of the corium to the blood-vessels, the hair-follicles, and the sebaceous and sudoriparous glands. They then ascend obliquely to the superficial layer of the corium, where they form a dense plexus around the papillary vessels. From this plexus numerous elementary fibrils ramify in various directions. Some pass downward into the tissues of the corium, but the greater number pierce the basement-membrane, and, passing through the stratum Malpighii, form another plexus there, from which other fibrils pass upward into the stratum granulosum. It was formerly believed that they ended in this layer as minute expansions between the granular cells; Unna, however, states as a result of the most recent investigations that they penetrate the protoplasm of the cells and terminate in a minute bulb, which is closely applied to the nucleus of the cells. They sometimes wind around the nucleus, but do not penetrate it. Their manner of termination is, therefore, typically introcellular.

PHYSIOLOGY OF THE SKIN.

Its functions are more numerous and varied than those of any other organ of the body. It forms a protective covering for the underlying structures, prevents the too rapid escape and evaporation of the water of the tissues, and assists in maintaining the temperature of the body at the normal standard. It is of the utmost importance as an organ of sensation, secretion, excretion, and absorption. It also serves as an accessory organ of respiration.

The cushion-like formation of the subcutaneous connective tissue, and the elasticity and firmness of the corium, modify the effect of blows and other external injuries, and protect the internal organs to a more or less extent from the shock which would otherwise result. The comparative impermeability of the horny layer of the epidermis prevents the too rapid transudation and evaporation of the fluids of the tissues. If it were not for the barrier thus interposed, the escape and evaporation of the water of the body would be so continuous and excessive that the tissues would become dried up and death ensue. The horny layer of the epidermis is also a protective to a considerable extent against the action of caustic or irritant substances, and against the effects of high or low temperature. The hair of the head and face is an additional protective against blows and injuries, as well as excessive heat and cold. The mustache and beard prevent dust and other foreign matter from entering the air-passages, the eyebrows prevent the perspiration of the forehead from running over the eyelids, the eyelashes prevent particles of dirt and other irritants from settling on the conjunctiva, and the short, stiff hairs at the openings of the ears and nostrils obstruct the entrance of insects into those passages.

Regulation of the Temperature of the Body.—One of the most important functions of the skin is that of maintaining the temperature of the body at the normal standard. An increase of ten degrees above, or a decrease of fifteen degrees below that standard, is incompatible with life. Owing, however, to the power which the skin possesses of resisting or accommodating itself to changes in the external temperature, much greater variations are observed every day, and endured with impunity.

The skin and its appendages are imperfect conductors of heat.

They protect the body against the effects of cold by retaining within the tissues a considerable proportion of the heat which is produced there. This action is further assisted by the involuntary contraction of the cutaneous muscles, by which the blood is driven from the periphery toward the centre, the general cutaneous surface lessened in extent, and the radiation of heat proportionately diminished.

They also form a mechanical protective against the action of moderate external heat. The processes by which the human body is enabled to resist a continuous high temperature are more intricate. The problem in this case is to prevent the temperature of the body from rising above the normal at a time when it is not only producing a superabundance of heat within itself, but is also surrounded by a still hotter atmosphere from which it is constantly receiving accessions. The chief means by which this result is attained is by a large increase of the cutaneous transpiration. In consequence of the impression made by a warm or hot atmosphere on the vaso-motor nerves of the skin, the cutaneous muscles become relaxed, the blood-vessels dilated, and the general superficies of the skin increased. A much greater surface is thus exposed for radiation and transudation, the skin becomes bathed with perspiration, by the evaporation of which active heat is converted into latent heat, and the temperature of the evaporating surface correspondingly diminished. This effect in reducing the temperature of the body or preventing an abnormal rise is greatest when the air is dry as well as warm. The amount of perspiration secreted under these circumstances is sometimes very great, amounting to from one to four pounds in an hour. The degree of heat that can be endured as long as perspiration and evaporation are not interfered with is astonishing. Drs. Blagden and Banks ascertained that a temperature of 211° could be borne without much inconvenience for a limited time in dry air. During one of their experiments the temperature was raised to 260°, and kept at that point for eight minutes. At the end of that time the clothes and furniture in the room were very hot, but the temperature of the body remained about normal. Tillet mentions the case of a girl who remained in an oven for several minutes without any ill effect while the temperature was 324·5°. The workmen of Sir F. Chantrey became habituated to entering the oven where their moulds were dried while the thermometer stood at 350°, and those employed by M. Magnus were accustomed to entering his oven when the temperature was over 400°. Chabert, the fire-king, is said to have entered ovens which were heated to 400° and 600°. In all these cases the atmosphere was perfectly dry, and the bodily temperature was kept down by the production and evaporation of a profuse amount of perspiration.

When, however, the air is moist, as well as hot, evaporation is effected with more difficulty; the temperature of the body rises rapidly, and the degree of heat that can be endured is much less. C. James, an English observer, was overcome by a temperature of 112° in the vapor-baths of Nero; but in the caves of Testaccio, in which the air is dry, he suffered very little inconvenience, although the temperature was 176°. In the former evaporation from the skin was an impossibility, while in the latter it was abundant.

The Respiratory Function of the Skin.—The respiratory function of the skin is analogous to that of the lungs. Oxygen is absorbed, and carbonic acid is exhaled. The quantity of either which passes through the skin is only a fractional part, however, of that which is taken up or given off by the lungs. Gerlach states that the lungs absorb one hundred and thirty-seven times as much oxygen as the skin. Scharling endeavored to make an estimate of the extent of the cutaneous respiration as compared with the pulmonary by a calculation based on the quantity of carbonic acid given off through each during the twenty-four hours. From his observations, he estimates that the skin performs from one-fiftieth to one-fortieth of the entire respiratory process. It is probable, however, that this calculation is too high. A great deal of the carbonic acid which is given off is eliminated through its function as an organ of excretion, and is not connected with the process of respiration.

Sensation.—The skin is the organ of the sense of touch, by means of which external impressions are recognized and localized. Tactile sensibility is an exaltation of the sensory power, by means of which the shape, size, and other properties of various objects are recognized. The sense of temperature is a variety of common sensation which enables us to differentiate between heat and cold. According to Schiff and Brown-Séquard, each of these impressions is transmitted to the brain by a different set of nerve-fibres.

All parts of the skin are endowed with common sensation, but some regions are more sensitive than others. In those regions of the body where the epidermis is thin, as on the face, neck, breasts, and inner surfaces of the arms and thighs, the susceptibility to external impressions is marked. Where the epidermis is thick, as on the heel, the back, and the outer surfaces of the limbs, the sensitiveness is much less. If the epidermis be removed, and the corium exposed, the sensation of contact is transformed into pain.

The tactile sensibility of the skin varies in accordance with the number of the nervous papillæ in the corium, and the presence or absence of the tactile and Pacinian corpuscles. Impressions made upon the epidermis are transmitted to the papillæ, and through them to the peripheral nerve-endings. The tactile and Pacinian corpuscles probably act mechanically by furnishing a support for the terminal expansions of the tactile nerves, and by presenting a hard surface against which the delicate nerve-filaments can be pressed. They are not essential for the exercise of common sensation, but wherever they exist the power of appreciating delicate impressions is much increased. Meissner remarks that the tactile corpuscles are most abundant on the tips of the fingers, where he counted one hundred and eight in the space of a fiftieth of an inch. Consequently tactile sensibility is most highly developed there, the delicacy of touch of the fingers being proverbial. It can be further increased by education and practice, and by its acuteness frequently compensates in a great degree for the loss of other powers. In this manner the blind become able to read sentences in raised letters, to recognize individuals by the contour of their faces, and even to distinguish various shades of color through some indescribable difference of surface.

The relative tactile sensibility of different parts of the skin has been ascertained by an ingenious method devised by E. Weber in 1829. This method is based upon the power of recognizing and isolating two distinct impressions made upon the surface at the same time, and at a minimum distance apart. It consists in the application to the skin of two fine points placed at a known distance apart. If two impressions are felt, the distance between the points is to be gradually decreased until the limit of their perception as two points is reached. This is termed the limit of confusion. If the points be brought still nearer together, their double impression will only be felt as one.

We learn from the experiments made by Weber, and confirmed since by other observers, that tactile sensibility is most acute on the end of the third finger and the tip of the tongue. If the eyes be closed, and the points of an æsthesiometer be applied to either the tip of the tongue or the end of the third finger, a double impression is distinctly perceived when the points are only one twenty-fourth of an inch apart; while, for the recognition of two impressions on the palmar surface of the thumb, the points must be separated one twelfth of an inch; on the red surface of the lip, one sixth of an inch; tip of the nose, one fourth of an inch; middle of the dorsal surface of the tongue, one third of an inch; the eyelids and palm of the hand, five twelfths of an inch; back of the fingers, seven twelfths of an inch; forehead and cheeks, five sixths of an inch; back of the hand, one and one sixth of an inch; crown of the head, one and one fourth of an inch; patella and lower portion of the thigh, one and one third of an inch; leg and dorsum of foot, one and a half inch; back of neck, two inches; sacral region, one and a half inch; sternal region, one and two thirds of an inch; lumbar and upper dorsal vertebral region, two inches; and, finally, over the middle cervical and middle dorsal vertebræ, and middle of the thigh and forearm, the points are not perceived as two until they are separated two and a half inches. It will thus be seen that this faculty is sixty times greater in some regions of the skin than it is in others. This difference depends upon the number of primitive nerve-fibres present, and therefore indirectly upon the number of papillæ in the part. If the primitive nerve-fibres are few in number, it is possible that several contiguous impressions may be conveyed to the same nerve-fibre, and consequently produce but one impression on the sensorium. Each nerve-fibre ends in a tuft of delicate filaments which supply an oval or circular area of the skin of about one four-hundredth of an inch in diameter, but the filaments of contiguous fibres interlace with each other, so that, the more numerous and closer the nerve-fibres, the greater the probability that two simultaneous impressions made upon the surface will be transmitted to different nerve-filaments, and recognized by the sensorium as separate impressions.

The sensibility of the skin to changes in temperature varies in different individuals and in different parts of the body. It is most acute in those portions of the surface where the epidermis is thin. Variations of even one half a degree can be distinguished with the tip of the tongue. The face and the fingers and the elbow are also capable of appreciating very slight changes in temperature. Weber's experiments have shown that sensations of heat and cold are modified by the extent of the surface exposed to the impression ; the greater the extent of surface exposed, the more intense will be the sensation produced. The whole hand dipped in water of a certain temperature may feel it too hot to be borne, while to a single finger it may be only comfortably warm.

The sense of temperature is distinct from that of touch, and may remain unimpaired when all other sensation is lost. It is well known that paralyzed limbs, which are insensible to pressure and the contact of the æsthesiometer, are capable of recognizing the difference between heat and cold. This may be explained by the existence of a special set of nerves for the reception and conveyance of thermal impressions, or the occurrence of degenerative changes in the cord or in the cerebrum.

Absorption.—It was formerly supposed that the horny layer of the epidermis presented an insuperable obstacle to the passage of any substance through the skin into the blood. So much evidence, however, has been accumulated to the contrary that the importance of the skin as an organ of absorption is now universally recognized. Under ordinary circumstances this function is limited to the absorption of oxygen and watery vapor, but it may be utilized for the administration of various medicinal preparations. Experience has shown that their action when introduced into the system in this manner is almost as prompt and efficacious as when they are taken into the alimentary canal.

The absorption of oxygen by the skin is undoubted, and constitutes an essential part of the general respiratory process. The absorption of watery vapor is well shown by the rapid recovery of the weight which has been lost by excessive perspiration. Persons after taking a hot bath, during which they lose one or two pounds in weight, almost invariably regain their former weight in a couple of hours, although they neither eat nor drink in the mean time. Part of this increase is effected by pulmonary absorption, but a considerable part of it is due to cutaneous absorption. It has also been observed that the sensation of thirst is diminished in a moist atmosphere, and that it may be further lessened by immersing the clothes or the whole body in water. Shipwrecked sailors have relieved their thirst in this way and preserved their lives, long after their supply of drinking-water became exhausted. This happy result is in part due to a diminution of the evaporation of the fluids of the tissues, but is also due in part to the direct absorption of a large quantity of water. In reference to this point, Captain Kennedy says, in the narrative of his shipwreck, which he addressed to the Royal Philosophical Society: "I can not conclude without making mention of the great advantage I derived from soaking my clothes twice a day in sea-water, and putting them on without wringing. . . . There is one very remarkable circumstance, and worthy of notice, which was that we daily made the same quantity of urine as if we had drunk moderately of any liquid, which must be owing to a body of water absorbed through the pores of the skin. . . . So very great advantage did we derive from this practice that the violent drought went off, the parched tongue was cured in a few minutes after bathing and washing our clothes; at the same time we found ourselves as much refreshed as if we had received some actual nourishment."

Experimental observations have shown that when the temperature of a bath is higher than that of the body, more water is lost by perspiration and pulmonary exhalation than is absorbed, and there is consequently a loss in weight. In a bath of 90° the processes of exhalation and absorption are equal, but in tepid and cold bathing the gain by absorption exceeds the loss by exhalation, and the body-weight is slightly increased. Various medicinal substances may be introduced into the system through the medium of the bath, and can be afterward detected in the urine. The benefit derived from a residence at the different springs of Europe or America is due in a considerable degree to the absorption through the skin of the sulphur, the alkaline, or the chalybeate ingredients of the water in which the daily bath is taken.

The rate of cutaneous absorption depends upon the solubility and diffusibility of the substance which may be placed in contact with the skin. Insoluble substances can not be absorbed at all, while oxygen, hydrogen, chlorine, and other gases, and chloroform, turpentine, ether, and similar volatile substances, diffuse into the blood with great rapidity. Alcoholic solutions are not well absorbed, but chloroformic solutions of the various alkaloids, when applied to the surface, produce their characteristic systemic effects in a very short time. The absorption of soluble but non-volatile substances is effected more slowly, but may be facilitated by friction, by which their particles are forced into the orifices of the glands, where they are dissolved by the secretions and carried into the system through the interstices of the stratum lucidum. It is in this manner that mercurial ointments produce their specific effect in syphilis. The poisonous effects of lead and arsenic are developed in the same way in those whose occupations compel them to handle these minerals, or who use them for any length of time as cosmetics.

The various oils and fats, and substances dissolved or held in suspension by them, are readily absorbed by the skin. Baths or inunctions of cod-liver oil form an invaluable resource in the treatment of phthisis, marasmus, and other wasting diseases.

Medicinal substances applied to the surface of the corium after the epidermis has been removed are absorbed with great rapidity.

Secretion and Excretion.—The importance of the skin as an organ of secretion and excretion can not be overestimated. Any disturbance of its functions in this respect is liable to be followed by the most serious consequences, and their complete suspension is certain to result in death. Instances of recovery after the urinary secretion has been suppressed for several days are recorded, but if the elimination of effete material by the skin be completely prevented, a fatal result will ensue in a few hours. Burns involving more than one third of the general surface are invariably fatal, not because of the pain or the shock to the nervous system, but because the excretory surface of the skin is lessened one third. As a consequence of this sudden diminution of the eliminating process, death frequently occurs from cerebral effusion in an hour or two after the injury. In the majority of cases, however, the kidneys and lungs endeavor to compensate by increased work for the lessened excretion by the skin, but the over-excitation of these organs generally results in inflammation in a few days, and the patient dies from pneumonia or nephritis.

The skin secretes sebaceous matter and the perspiration or sweat, and excretes carbonic acid and water, and, probably, certain other volatile principles which have thus far escaped observation. The elimination of carbonic acid by the skin is an essential part of the respiratory process. If an animal be covered with varnish, impermeable by water or gases, it will die in from six to twelve hours. The cause of this has not been definitely ascertained. All that is known is that complete suppression of the functions of the skin in this manner is followed by a rapid fall of temperature and death. The fatal result is perhaps due in part to the retention of carbonic acid in the system, and in part to the retention of some undiscovered morbific cutaneous products.

The Sebum.—The sebaceous matter, or sebum, is a semi-fluid material which is secreted by the sebaceous glands. It is composed of free fat, fat-cells, and epithelial *débris*. Chemically, it contains about thirty-five per cent. of water, forty per cent. of olein and palmatin, thirteen per cent. of casein, eight per cent. of gelatin, and traces of albumen and various odorous principles, and a small quantity of the chloride, phosphate, and sulphate of sodium.

The uses of this secretion are manifold. It preserves the normal softness and pliability of the skin, and acts as a protective to those parts of the body that are exposed to atmospheric changes. It prevents the maceration of the epidermis that would otherwise follow profuse perspiration, lessens the friction between contiguous surfaces, and protects the skin around the outlets of the body from the contact of irritating excretions. It also gives lustre and pliability to the hairs, and probably contributes to their growth and nutrition.

The Perspiration.—The perspiratory function of the skin is of the utmost importance, as a means by which effete materials are removed from the system, and the temperature of the body prevented from rising above the normal standard. It was formerly supposed that perspiration was the product of the sudoriparous glands alone; it is now known that it is composed in large part of the water which is diffused outward from the interstices of the deeper layers of the epidermis and becomes intermingled with the secretions of the glands. Unna, and other observers, maintain that it is derived exclusively from the epidermic interspaces, and that the function of these glands is restricted to furnishing a lubricating material for the skin.

Perspiration in health is a colorless fluid, saltish in taste, and slightly acid in reaction. It is composed of nine hundred and ninety parts of water and ten parts of organic and inorganic solids. The inorganic materials consist mainly of the chlorides of sodium and potassium, with some traces of iron and the earthy phosphates. The organic constituents consist chiefly of urea, fat, and fatty acids. The quantity of urea contained in perspiration under ordinary circumstances is not large, but it is enormously increased when the functions of the kidneys are suppressed, as in certain forms of Bright's disease. The odor of perspiration is partly due to the various fatty acids, and partly perhaps to some volatile odorous substances which have not yet been isolated.

The mutual relation existing between the skin and kidneys as organs of elimination is shown by the well-known fact that when the perspiration is diminished, as in cold weather, the quantity of urine is increased, while during warm weather, when the perspiration is more abundant, a smaller amount of urine is secreted.

The production of perspiration is controlled by a special system of nerves, analogous to those which regulate the secretion of saliva, and is stimulated under normal circumstances by the presence of an increased quantity of blood in the capillaries of the skin. It may, however, be increased or diminished by the action of certain medicinal agents without regard to the condition of the cutaneous circulation. Atropine, as is well known, will check the most profuse perspiration, although it may, and frequently does, produce at the same time an intense hyperæmia of the whole surface. Opium, pilocarpine, ipecac., and other diaphoretic agents induce free perspiration, during which the skin remains pale and cool. The cold sweats of phthisis, of syncope, and of fear also occur while the surface is pale. It is not improbable, however, that these abnormal perspirations are due to a paresis of the nerves and a relaxation of the vessels, and should consequently be regarded as an exudation rather than a secretion.

The amount of perspiration in health varies in different individuals and under different circumstances. It is decreased by cold and increased by heat. It is increased by exercise and by taking food or drink, by breathing in a confined space, by putting on additional clothing, and by all circumstances that produce an increased flow of blood through the capillaries of the skin. According to the observations of Seguin, Lavoisier, and others, the average daily amount of water removed from the body by perspiration is thirty ounces. More than this quantity may, however, be lost in an hour when the body is exposed to a very high temperature. It is by the evaporation of this large amount of water that the surface heat is lowered, and the temperature of the blood prevented from being raised to a point incompatible with life.

The perspiration emanating from the axilla, the genital regions, and between the toes has a peculiar odor, which at times becomes excessively offensive, constituting the affection known as bromidrosis. It is always distinctly alkaline. Donne states that the alkalinity, as well as the odor, is due to the intermingling and decomposition of the secretions of the other follicles of the part.

SYMPTOMATOLOGY.

Diseases of the skin manifest themselves by local and constitutional symptoms. The constitutional vary in gravity in accordance with the amount of nutritive or functional disturbances present. In some cases they may be so slight as to scarcely attract attention, while in others they may be so serious that energetic treatment is necessary for their relief. Disorders of digestion are the most frequent constitutional symptoms of skin diseases. Disorders of menstruation are often present. Functional disturbances of the urinary and other organs may also occur, and if not remedied may lead to serious structural changes. Fever is present at times, and some forms of skin diseases are accompanied by increasing debility and progressive emaciation.

The local symptoms of cutaneous diseases are subjective and objective.

Subjective Symptoms.—The subjective symptoms of cutaneous diseases are those which can be recognized by the patient alone. They consist of alterations or anomalies in the sensation of a portion of the surface, and may be conveniently considered as pain, hyperæsthesia, anæsthesia, and pruritus, or itching. They vary in degree in different diseases, and are sometimes entirely absent.

Pain may be hot or burning, as in the various inflammatory affections of the skin, or it may be sharp and neuralgic in character, as in herpes zoster, neuroma, and carcinoma. Hyperæsthesia, or an increased sensitiveness of the cutaneous surface, is a prominent symptom of both functional and organic derangements of the nervous centres. At times it appears to be purely idiopathic, as in dermatalgia. Anæsthesia, or a diminished sensitiveness of the skin, is sometimes symptomatic of diseases of the nerve-centres, and sometimes due to local causes. It is present to a marked degree in leprosy, and is found occasionally in connection with syphilis. Pruritus, or itching, is the most frequent and most prominent of the subjective symptoms of cutaneous disease. It occurs in varying degree in a great number of affections. It may be due to the irritation of parasites, or to the reflex action of internal causes, as in jaundice, or, as is more commonly the case, to the direct action of inflammatory or other morbid processes upon the terminal filaments of the cutaneous nerves.

Objective Symptoms.—The objective symptoms of skin diseases are the structural lesions which become manifest upon the surface of the skin, and can be recognized by the physician as well as by the patient. They are the result of the various pathological processes which occur in the skin, and by their number and character indicate the nature and intensity of the morbid process.

They consist of primary and secondary lesions. The primary are those which are due to the direct action of various morbid processes or to the deposition of morbid products in the skin. The secondary are those which follow the primary, and are due to the softening and breaking down, or to the organization and metamorphosis of the products of disease.

The primary lesions are: 1. Maculæ, spots, macules; 2. Erythema, hyperæmia, redness; 3. Pomphi, wheals; 4. Papulæ, papules, pimples; 5. Tubercula, lumps, tubercles; 6. Tumores, tumors; 7. Vesiculæ, vesicles; 8. Bullæ, blebs; 9. Pustulæ, pustules.

The secondary lesions are: 1. Excoriationes, excoriations; 2. Squamæ, scales; 3. Crustæ, crusts, scabs; 4. Rhagades, cracks, fissures; 5. Ulcera, ulcers; 6. Cicatrices, scars; 7. Pigmentation.

PRIMARY LESIONS.

Maculæ, Spots, Macules.—Macules are small, circumscribed alterations in the color of the skin, unaccompanied by any marked elevation or depression of the surface. They are usually oval or circular, but vary in form as well as in size. They vary in color also in accordance with the morbid processes of which they are the result. Those which are due to simple hyperæmia of a portion of the papillary layer of the corium are red or rose-colored, and disappear under pressure. They are termed roseola, and are met with in a number of cutaneous and systemic affections. Those which are accompanied by inflammation and slight exudation are more persistent, and can not be effaced so easily by pressure. The hyperæmic or inflammatory area that encircles another cutaneous lesion is termed an areola.

Macules which are caused by hæmorrhages into the skin vary in color from dark-red to purple and black, and are termed purpura. If the hæmorrhagic spots are minute, they are known as petechiæ. Linear hyperæmias or extravasations are called vibrices. The discoloration produced by a large effusion of blood into the subcutaneous connective tissue is termed an ecchymosis.

Those which are caused by an abnormal development and dilatation of the blood-vessels of the corium may be either congenital or acquired. When they are congenital, they are termed nævi; when they appear after birth, they are known as telangiectases. They vary in color from scarlet to violet, and do not disappear under pressure.

If due to an excessive amount of pigment in the skin they are yellow, brown, or black in color, as in lentigo, chloasma, and nævus pigmentosus. The latter is sometimes congenital, as in the so-called "mother's marks," but lentigo and chloasma are invariably acquired.

When produced by a deficiency of pigment they are white in color, and constitute the disease known as leucoderma. Congenital deficiency of pigment is known as albinism.

Macules produced by the microsporon furfur, a vegetable parasite, are yellow or yellowish-red in color, and are characteristic of the disease called tinea versicolor. If due to the action of heat, or various chemical substances, they present all shades of colors.

If the alteration in color is uniform, and involves all or a large portion of the skin, it is termed a discoloration. This pathological condition is the prominent symptom in jaundice, chlorosis, morbus ceruleus, and argyria. It is also present in chronic malaria, leprosy, carcinoma, and in some forms of ovarian and uterine diseases.

Erythema, Hyperæmia, Redness.—Erythema is a diffused redness of a portion of the surface of the skin produced by an active congestion of the capillary plexuses of the corium. It differs from roseola in size, and in the greater intensity of its exciting cause. The congestion in roseola is frequently passive, and is manifested at isolated points on the surface. The congestion in erythema is invariably active, and involves one or more groups of contiguous vessels. It is also accompanied by more or less heat, swelling, and pain.

Erythema may be produced by external causes, as by exposure to heat, or by friction or other irritation. At other times it is due to internal causes alone. It is always a prominent symptom in the diseases with which it is associated, and is frequently so severe as to demand special treatment. Sometimes it appears to be the only lesion, and constitutes the disease itself.

Passive congestion, due to venous obstruction or a weak heart, can readily be distinguished from erythema, by the contrast between the coldness and dull, blue color of the skin in the former, and the heat and fiery redness of the surface in the latter.

Pomphi, Wheals, Urticæ.—Wheals are flattened, oval, or circular elevations of the skin, rapid in formation, evanescent in character, and attended by intense itching. They vary from a few lines to an inch or more in diameter. They are usually white or pale-red in color. Frequently they are pale in the centre and red at the periphery. They may appear singly, but generally several are developed simultaneously. Those that are adjacent to each other manifest a tendency to coalesce and form a large patch of irregular shape. They are attended by intense itching, and a sensation of heat or tingling. Scratching or rubbing only serves to increase and enlarge them. They are developed with great rapidity, but are extremely evanescent in character, and after remaining for a brief period disappear almost as quickly as they came.

They are caused by a dilatation of the capillaries and an exudation of serum into the interstices of the corium and rete mucosum, followed by a spasmodic contraction of the tissues around the periphery of the exudation. As soon as the spasm subsides the exudation is absorbed, and the wheal vanishes almost as suddenly as it was formed.

Sometimes a little blood may be found mingled with the serum. Occasionally the amount of exudation is so great as to form a bulla, as in urticaria bullosum, or a node, as in urticaria nodosum.

Papulæ, Papules, Pimples.—Papules are small, solid elevations of the skin of new formation, ranging in size from a mustard-seed to a split pea. They may be of any color from red to black, and are either round, flat, or conical in form. They occur in a great many diseases, and are due to a number of different pathological processes. Sometimes they are due to an excessive growth and accumulation of epidermic cells around the orifices of the hair-follicles, as in keratosis pilaris. At other times they are caused by retention of sebum, as in milium and comedo. They may also be due to an abnormal development of the papillæ of the corium, as in verruca and ichthyosis, or to a hyperplasia of the rete mucosum, as in psoriasis and cornu cutaneum. The most common variety of papules are those which occur in acne and eczema, and are due to inflammation and plastic exudation into the skin. Papules may also be produced by cell-infiltration, as in syphilis, or by a new cell-growth, as in lupus and carcinoma. Occasionally they are due to hæmorrhage, as in purpura papulosa. Those which are the result of the inflammatory process are usually attended by more or less itching, and frequently become converted into vesicles or pustules.

Tubercula, Tubercles.—Tubercles are solid elevations of the skin of new formation, varying in size from a split pea to a hazelnut. They are of different colors, but are usually reddish or flesh-colored. They are generally circular or oval, but may be flattened or irregular in outline. They are caused by an intensification of the same morbid processes which are concerned in the production of papules, and differ from them only in their greater size. In fact, the line of distinction is mainly an arbitrary one. Many of the tubercles met with in disease begin as papules, and by involving deeper tissues and a greater extent of surface develop into tubercles. Syphilis, leprosy, lupus, and carcinoma present typical examples of this metamorphosis.

Tubercles undergo various changes after the acme of their development has been reached. Those which are purely inflammatory may proceed to complete involution by absorption of their contents and desquamation of their epidermic covering. If due to the retention of sebum, they may become indurated by calcification of their contents, or they may soften and suppurate. Syphilitic tubercles usually terminate in ulceration. Tubercles due to neoplastic growths generally end in ulceration, but occasionally they manifest a disposition to remain without undergoing any change whatever.

Tumores, Tumors.—Tumors are large, solid elevations of the skin, of all sizes from a hazelnut to a cocoanut, or even larger. They are generally spherical or hemispherical in form, but may be cylindrical or flattened. They are usually flesh-colored, but at times are brown or black. They arise from the corium or the subcutaneous connective tissue, and by their outward development raise the epidermis to a considerable degree above the surrounding surface. They are due to a number of pathological processes. Among the more frequent exciting causes are new growths in the corium and degeneration of the sebaceous glands, with exudation and extravasation into the surrounding tissues. Large tumors are sometimes formed by retention of sebum, and the gradual distention and hypertrophy of the sebaceous glands.

Vesiculæ, Vesicles.—Vesicles are small, round, or conical elevations of the epidermis, in dimension from a mustard-seed to a split pea, and contain serum, or a sero-purulent or bloody liquid. They vary in color in accordance with their contents. The typical vesicle is transparent, and contains pure serum unmixed with either pus or blood. Those that contain lymph or pus-corpuscles are white or opaque, and those in which blood is present are dark or dark red in color. Their walls are tense when they are completely filled with fluid, and flaccid when they are only partially filled. They may be superficial or deep-seated. Those that are superficial are situated between the horny and mucous layers of the epidermis. The others are formed between the strata of the rete mucosum. The superficial rupture easily. Those which are developed in the rete mucosum are surrounded by thicker walls, and consequently are more tenacious.

Vesicles are of inflammatory origin as a rule, and are due to an exudation of fluid from the vessels of the papillary layer of the corium. As the exudation is poured out, it passes through and distends the intercellular spaces of the mucous layer of the epidermis, and forms a vesicle by elevating the stratum corneum, or the upper layer of the stratum mucosum. Occasionally they are produced by simple retention of perspiration, as in sudamina. They may be either simple or compound. The former consist of one chamber, as in eczema; the latter are composed of two or more, as in varicella. Vesicles seldom occur singly; they are generally developed in considerable numbers, and are met with in a variety of diseases and on all parts of the body. They may be arranged in groups, as in herpes, or irregularly distributed, as in eczema. They are brief in duration, and end by rupture of their walls and escape of their contents, or by absorption of the fluid and desquamation of their roof; or else they become filled with pus-cells, and transformed into pustules.

Bullæ, Blebs.—Bullæ are large oval or spherical elevations of the epidermis, in size from a split pea to a small cocoanut, and contain a serous, sero-purulent, or bloody fluid.

Bullæ may be regarded as enlarged vesicles. Their color depends upon the character of their contents, and varies from clear or light-yellow, in those that contain only serum, to dark red or black in those in which an extravasation of blood has taken place. In consequence of their rapid formation their walls are usually distended at first, but as absorption begins they soon become flaccid. Bullæ consist as a rule of but one chamber; compound bullæ, which are occasionally met with, contain two or more chambers, and are due to the coalition and enlargement of a group of adjacent vesicles. Like vesicles, they are situated between the horny and mucous layers of the epidermis, and are produced by a sudden and overwhelming exudation from the vessels of the corium. Ordinarily they do not rupture as easily as vesicles, but in pemphigus foliaceus they burst before they are fully formed. Sometimes they are attended by marked itching or burning sensations; at other times they are not accompanied by any subjective symptoms whatever. Bullæ are met with in pemphigus and pemphigoid eruptions, syphilis, leprosy, herpes iris, and in some cases of erysipelas and acute dermatitis. They are sometimes surrounded by an inflammatory areola, but frequently rise abruptly from the surface of apparently healthy skin.

Pustulæ, Pustules.—Pustules are round, flat, or conical elevations of the epidermis, varying in size from a mustard-seed to a cherry, and containing pus. They are inflammatory in origin, and are produced by the migration and proliferation of lymphoid corpuscles from the vessels of the corium. They are usually yellow or yellowish-white in color, but are occasionally dark from hæmorrhagic exudation. They have been divided into primary and secondary. The secondary are those which are developed from pre-existing papules or vesicles. The primary are those in which the preceding stages of congestion and exudation are so brief that they escape notice until suppuration is complete, and the resulting pustule appears to be the original lesion. Pustules may originate in the sebaceous glands, as in acne; or in the hair-follicles, as in sycosis; or in the papillary layer of the corium, as in ecthyma and eczema pustulosum. They may also develop in the horny and mucous layers of the epidermis, as in variola, or deep in the corium and subcutaneous connective tissue, as in furuncle and anthrax. They are usually encircled by an inflammatory area, and are occasionally attended by marked itching or burning sensations. Sometimes they are extremely painful, but generally they are not accompanied by any marked subjective symptoms. They may be simple, as in acne, or compound, as in variola, where they contain two or more chambers. Pustules are of comparatively brief duration, and end by absorption, or rupture of their walls and discharge of their contents. If the suppurating process has been limited to the epidermis, no deformity will result; but, if a considerable portion of the corium has been destroyed, permanent scarring or pitting may ensue, as in variola, syphilis, and severe cases of acne. Pustules are encountered in acne, sycosis, ecthyma, impetigo, variola, scabies, syphilis, and eczema. They may also be produced by traumatism, and by the application of croton oil, tartar emetic, and other irritating substances.

SECONDARY LESIONS.

Excoriationes, Excoriations.—Excoriations are losses of substance from the superficial layers of the skin resulting from traumatic causes. They vary in size and shape, but generally consist of torn points or linear furrows from which minute particles of blood and serum are oozing, or which have dried up and formed a crust over the lesions. Ordinarily they do not extend beneath the mucous layer of the epidermis, although at times they may involve the upper portion of the corium. They usually heal rapidly without the formation of a cicatrix.

Excoriations are occasionally produced by superficial incised wounds or by accidental lacerations or abrasions of the surface, but in the great majority of cases they are the direct result of excessive scratching caused by the itching and irritation of a cutaneous affection. As itching is a prominent symptom of a number of skin diseases, excoriations are frequently observed, and at times render important assistance in establishing a diagnosis. They occur most abundantly in prurigo, pruritus, eczema, scabies, and pediculosis.

Squamæ, Scales.—Scales are masses of dead epidermis which have been completely or partially separated by disease from the underlying strata. They are usually white or gray in color, but may be yellow or brown. They differ in form and size and also in number, in accordance with the situation and intensity of their exciting cause. When the morbid process which produces them is superficial, they are small and scanty; when it is deep-seated, they are larger and more abundant. They are met with in various parasitic and inflammatory affections, and in diseases due to perverted nutrition of the epidermis. They are thin, fine, and branny in pityriasis, seborrhœa sicca, and some forms of eczema. In psoriasis they form large masses of a white pearly color, while in ichthyosis they form thick plates. In scarlatina, and other diseases, the epidermis is sometimes cast off in large parchment-like masses several inches in diameter. This extensive exfoliation is termed desquamation in mass, in contradistinction to the process of formation and detachment of fine branny scales, which is known as furfuraceous desquamation.

Crustæ, Crusts, Scabs.—Crusts or scabs are solid masses formed by the drying up of exuded or extravasated fluids, or by the collection on the surface of sebaceous matter or fungous elements. They vary in color as well as in size and form. Those which are formed by the drying up of a serous exudation, as in vesicular eczema, are thin and yellow or light-colored, and have no definite form. Those which result from the drying up of pus are thick and green, or dark yellow in color, and are of the same form as the ulcer or broken-down pustule upon which they are seated. When blood is mixed with the exudation, the crust will be reddish or black. Syphilitic crusts are thick and hard and dark green or black in color, and usually present a lamellated appearance. Crusts formed by the drying up of sebaceous material vary in color from light to dark yellow, and can be recognized at once by their greasy appearance. The crusts produced by the favus parasite are cup-shaped, yellow, or sulphur-colored, and exceedingly friable.

Rhagades, Cracks, Fissures.—Rhagades or fissures are linear wounds of the skin produced by muscular action. They are usually limited to the horny and mucous layers of the epidermis, but may extend a short distance into the corium. They are caused by muscular contraction acting on a portion of the skin, which from inflammatory infiltration or abnormal dryness has become inelastic or brittle, and ruptures instead of yielding. They may occur on any part of the surface which is exposed to tension, but are observed most frequently on the knuckles, the palms of the hands, the soles of the feet, the knees and elbows, and at the angles of the mouth. They are of different lengths, and may run in a straight or irregular direction. Deep fissures bleed readily, and are accompanied by more or less pain, which is aggravated by motion.

Fissures are present in psoriasis, eczema, lichen ruber, scleroderma, and syphilis. They may also be produced by the use of strong soaps, or the action of cold and other irritants.

Ulcera, Ulcers.—Ulcers are inflammatory breaches of continuity due to suppurative destruction of the superficial tissues. They are usually seated in the upper portion of the corium, but may extend into the subcutaneous connective tissue. They vary much in size and shape. Small ulcers are usually circular; large ulcers may be round or oval, but are often serpiginous or irregular in outline. The walls of an ulcer are either perpendicular or sloping, and are frequently undermined. The base may be smooth, but is generally uneven, and is covered by a more or less copious secretion of pus. Ulcers may occur on any part of the body, but they are found most frequently on the lower extremities. They vary in color from light-red to dark-purple, according to the intensity and character of the inflammation of which they are the result. They are surrounded by a zone of congestion, and manifest a tendency to enlarge in breadth rather than in depth. Ulcers occur in syphilis, lupus, leprosy, carcinoma, anthrax, furuncle, scrofula, and several other diseases. They may also be produced by any local cause which seriously interferes with the circulation. They are always secondary to other lesions, and may run an acute or chronic course. They heal by granulation and the formation of a cicatrix, which sometimes remains permanently. Ulcers are attended by more or less pain.

Cicatrices, Scars.—Cicatrices are new formations of connective tissue which occupy the place of lost normal tissue. They are covered by a thin layer of epidermis, and are supplied with blood-vessels and lymphatics, but do not contain any hair-follicles or sudoriparous or sebaceous glands. They are of a pale-red color at first, but generally become white. Large cicatrices range in color from gray to brown.

Superficial cicatrices are smooth and soft, and freely movable; those which are deeper seated are hard, uneven, and immovable. Those which are raised above the surrounding surface are termed hypertrophic cicatrices; those which are on a level with it are called normal cicatrices; those which are depressed beneath it are known as atrophic cicatrices. Cicatrices are not characteristic of any one morbid process; but are the result of extensive destruction of the corium. They are met with in all the ulcerative diseases, and may follow severe burns, wounds, and other injuries. Their size and form depend upon the nature and extent of the preceding ulcerative or traumatic lesions. They are generally permanent, although occasionally they may be slowly obliterated. They are not supplied with nerves, and in consequence are generally devoid of sensation; but in some rare instances they are the seat of excruciating pain. This is due, however, to pressure of the contracting new tissue on a nerve-fibre which has been accidentally inclosed in it. Atrophic cicatrices that are multiple, and bean or kidney shaped, are generally the result of syphilis.

Pigmentation.—Pigmentation is an augmentation in color of a considerable portion of the skin. It may be of brief duration, or may remain permanently. It may be due to chronic inflammation or long-continued congestion. Sometimes it is caused by the formation of neoplasms in the skin, and at other times it appears to depend upon trophic disturbances. Typical instances of pigmentation are presented in Addison's disease, and as a result of excessive scratching and continuous hyperæmia in pediculosis.

DIAGNOSIS.

The importance of making a correct diagnosis in all cases of cutaneous affections can not be overestimated. No satisfactory plan of treatment can be formulated unless the disease be definitely recognized, and an endeavor made to ascertain its cause.

The diagnosis of skin-diseases is not difficult as a rule. The most essential requisite for success in this respect is a thorough knowledge of the cause and mode of development and termination of the various diseases of this class, and of the significance of the lesions that occur in the progress of each. Valuable assistance may also be derived from a careful consideration of the patient's personal and family history.

In order to elicit all the information possible in reference to each case, a systematic method of examination should be adopted.

Light.—Abundant daylight is indispensable for the proper examination of the diseased cutaneous surface. Many of the macular eruptions, which can readily be perceived then, appear indistinct or may escape recognition in the twilight, or in an imperfectly lighted room. Artificial light, no matter how brilliant or from what source it may be derived, should be avoided, as it always gives an unnatural color to the skin, and adds to the difficulty of making a correct diagnosis.

Temperature of the Room.—The temperature of the room should be maintained at about 70°. Variations above and below this point modify the color of the skin, change the appearance of the eruption, and may be uncomfortable or injurious to the patient.

Inspection.—In order to make a correct diagnosis, every portion of the affected surface should be examined. Some diseases present so many points of resemblance that the differentiation between them can not be made without a critical and comprehensive observation of all their features. There is a natural reluctance on the part of many patients to permit an examination of certain parts of the body, but this difficulty can be overcome by the exercise of a little tact. If the eruption be diffused, and the patient be a man or a child, the clothing should be removed, and the entire surface exposed to view.

All deviations from the normal color or appearance of the skin should be carefully noted. In some diseases the surface is dry and scaly, while in others it presents an extremely greasy and glossy appearance. It should be observed whether the natural lines and furrows of the skin are lessened or exaggerated in size ; whether the orifices of the sebaceous ducts are closed or patulous ; whether the growth of hair is more or less abundant than normal, and whether the individual hairs present a healthy or an unhealthy appearance. It should also be observed whether the sebaceous and sudoriparous secretions are profuse or scanty. The degree of muscular development and the amount of adipose tissue present should also be taken into consideration.

Palpation.—The information obtained by palpation is of the utmost importance, and is frequently indispensable to the formation of a correct diagnosis. By it we can recognize whether the skin is cold or hot, dry or moist; whether it is smooth and soft, or rough and hard; and whether it is abnormally loose and thin, or thickened and infiltrated. By palpation we are also enabled to determine whether the abnormal redness of the skin which is present in many affections is due to simple capillary congestion or to hæmorrhagic extravasation; and whether the various exudative collections are fluid or solid in character. We can also ascertain by it whether the hairs are brittle and loose, or strong and resisting, and firmly imbedded in their follicles.

Odor.—Valuable information is sometimes afforded by the sense of smell. The offensive odor of bromidrosis, the ammoniacal odor of uridrosis, and the peculiar odor of favus and small-pox, are so characteristic that a diagnosis can often be made in these diseases by the smell alone.

Constitutional Symptoms.—The majority of skin-diseases are not accompanied by severe constitutional symptoms. Disorders of the alimentary canal are frequently met with, and pain is a prominent feature of herpes zoster and several other cutaneous affections, but high fever and general malaise rarely occur except in connection with the exanthemata. It must be remembered, however, that the eruption of secondary syphilis is sometimes preceded by marked pyrexia, and that severe forms of eczema, pemphigus, urticaria, erythema nodosum, pityriasis rubra, and lichen ruber, may be attended by violent constitutional disturbances. Anthrax, furuncles, and erysipelas are also accompanied by more or less fever and pain.

Age.—The age of the patient is an important factor in making a diagnosis. Some diseases are most frequently met with during infantile life, some occur only at the age of puberty and in young adults, while others are found only in advanced age. Acne, for instance, rarely occurs before puberty, psoriasis has never been observed in an infant, while epithelioma seldom occurs before the thirtieth year, and is most frequent from the fiftieth to the seventieth.

Sex.—The sex of the patient should also be taken into consideration. Owing to the differences in habit and modes of life and constitutional peculiarities of the two sexes, some diseases are found more frequently in males, others in females. Sycosis is found only in men.

Temperament.—The temperament or natural constitution of the patient should be carefully observed, as it is well known that some diseases manifest a predisposition to attack persons of a certain temperament in preference to those of a different type. Psoriasis, erythema nodosum, and chronic eczema generally occur in those of a gouty or rheumatic diathesis. Intertrigo, impetigo, and pustular eczema are more commonly met with in lymphatic patients, while diseases of the sebaceous glands are more frequent in those of a nervous temperament.

General Condition.—The general condition of the patient's health should be carefully ascertained. This can only be done properly by thoroughly investigating the manner in which the functions of the organs of digestion, assimilation, secretion, and excretion are discharged. The tongue should be examined, and the condition of the mouth and breath observed. Attention should then be directed to the stomach, and any disturbance of its functions noted. Inquiry should finally be made as to the present and usual state of the bowels. Irregularities of the menstrual function should be noted. Important assistance may sometimes be derived from information obtained by making an examination of the urine.

Habits.—The habits of the patient should be carefully inquired into. Many a doubtful point may be cleared up by ascertaining whether the patient is an inveterate smoker, or indulges in alcoholic or sexual excesses, or is accustomed to use cosmetics.

Occupation.—The occupation of the patient sometimes points directly to the diagnosis. Blacksmiths, brick-layers, cooks, and grocers frequently suffer from erythema and eczema. Butchers, hide-dealers, and wool-sorters are especially liable to be attacked by boils and carbuncles. Acne is common among persons who lead a sedentary life. Various forms of dermatitis occur among workers in dye-stuffs and other chemicals. Peculiar forms of eruption have also been noticed in those who are employed in oil-refineries and tar-distilleries.

Subjective Symptoms.

The subjective symptoms are of the utmost importance, and frequently render valuable assistance in making a diagnosis. Inflammatory diseases, as a rule, are attended by more or less pain and itching. Syphilitic eruptions, on the contrary, may be free from both. Herpes zoster and some other diseases are characterized by intense pain. Anæsthesia and hyperæsthesia are symptomatic of disorders of innervation.

Objective Symptoms.

General Appearance of the Disease.—The general appearance of a cutaneous affection is almost invariably characteristic of that affection alone. In some diseases the eruption is uniformly macular, in others it is papular, in others again it is purely vesicular or pustular, while in some two or more varieties of lesions may be noticed at the same time. By careful study, however, of the origin and manner of development of the various diseases, the difficulties of the subject will disappear, and such proficiency will be obtained that a diagnosis can be made in the majority of cases from the objective symptoms alone.

Duration.—The duration of the eruption is a matter of considerable importance. Some diseases, as lupus, are essentially chronic in character; others, as roseola and erythema, tend to disappear within a comparatively short time. Inquiry should also be made as to whether the eruption ever occurred before, and, if so, how often.

Color.—The color of the eruption is a valuable aid in making a diagnosis. The raw-ham or copper color of syphilitic eruptions is characteristic. Patches of chloasma vary from dark yellow to brown. Xanthoma is yellow in color. Tinea versicolor varies from light yellow to reddish brown.

Arrangement.—The form and arrangement of the lesions should be carefully observed. Those of lichen planus, herpes zoster, herpes iris, and the various forms of tinea, are characteristic in both respects.

Location and Extent.—The location and extent of the lesions often point unerringly to the diagnosis. Some diseases are confined to certain regions of the body, while others involve the whole surface.

Individual Lesions.—The size, shape, and mode of evolution of the individual lesions should be carefully observed, but too much importance should not be attached to trifling irregularities in their appearance or development. A correct diagnosis can only be made by a comprehensive review of the whole eruption, and its accompanying symptoms.

Microscopic Examination.—Important assistance may be obtained in many doubtful cases by making a microscopic examination of a section of the affected skin. The various parasitic diseases may be recognized in this way, and a distinction made between lupus exedens and epithelioma.

PATHOLOGY.

The skin is subject to the same morbid processes by which other portions of the body are affected, and consequently presents a variety of pathological changes, the most important of which are anæmia, hyperæmia, inflammation, hæmorrhage, hypertrophy, atrophy, and the formation of new growths. All three layers of the skin may be involved in these changes, but the corium is usually primarily and principally affected by them because of its abundant nervous and vascular supply. The skin is also attacked by numerous animal and vegetable parasites, and is sometimes the seat of various neurotic disturbances. Functional disorders of the sebaceous and sudoriparous glands frequently occur, and structural alterations of the glands and their ducts are often observed.

The hair-follicles, the hairs, and the nails are also subject to various pathological changes, which may be idiopathic in character or secondary to those which affect the adjacent cutaneous surface.

Anæmia.—Anæmia of the skin is symptomatic of a deficient amount of blood in the cutaneous capillaries. It may be the result of disease, or may be due to excessive loss of blood from the general system by hæmorrhage. It is characterized by unnatural pallor, which may be succeeded by a yellowish or greenish hue involving all or a great portion of the skin. It is usually attended by a decrease in the surface temperature, and may be accompanied by profuse perspiration.

Hyperæmia.—Hyperæmia of the skin is caused by congestion of the blood-vessels of the corium. It is usually active in character, but may be passive. Active hyperæmia may be produced by internal causes, or by the action of heat, cold, or other external irritating influences. It is characterized by a more or less diffused bright-red color of the skin, which can be effaced by pressure, but returns as soon as the pressure is removed. It is accompanied by a sensation of tingling or burning, and at times by considerable elevation of the temperature of the surface of the affected part. Active hyperæmia is of comparatively brief duration. The excess of blood is usually diverted into other channels, the congestion subsides, and the skin regains its normal appearance without the occurrence of either desquamation or pigmentation. If the congestion remain for any length of time, exudation is apt to occur, and the hyperæmic process passes into inflammation.

Passive hyperæmia may be due to simple relaxation of the capillaries, or to any local or systemic interference with the venous circulation. It may be frequently observed on the lower extremities, and is often followed by permanent pigmentation.

Inflammation.—The minute phenomena of cutaneous inflammation are identical in character with those which accompany inflammation of any other organ. There is a preliminary stage of active congestion during which the arterioles of the affected part are dilated, and the flow of blood through them is accelerated. This stage is of varying duration, but is always present. It is succeeded by retardation of the blood-current, and softening or relaxation of the walls of the capillaries. Exudation of the liquor sanguinis then occurs, followed by migration of the white and red corpuscles, and complete stasis of the circulation. The inflammatory process varies, however, in accordance with the diathesis of the patient and the nature and intensity of the exciting cause, and may be interrupted or modified at any period of its development. In some diseases, as herpes and vesicular eczema, the effusion is a serous fluid composed almost entirely of liquor sanguinis, and contains very few corpuscles. In diseases characterized by the formation of papules and tubercles it is semi-solid, and composed almost altogether of cells, while in pustular diseases it consists largely of pus-corpuscles and liquor puris.

Cutaneous inflammations always originate in the corium or subcutaneous connective tissue, and involve the epidermis secondarily. They are accompanied by more or less discoloration, heat, swelling, and pain. They terminate by absorption and resolution, or by suppuration and discharge of the effused material, or by its organization and conversion into new tissue. They may be either acute or chronic in character.

Hæmorrhage.—Cutaneous hæmorrhage may occur by diapedesis, but in the great majority of cases it is the result of rupture of the capillaries of the corium. In some rare instances the escaped blood oozes out upon the surface of the skin, but usually it is extravasated into the substance of the corium or the subcutaneous connective tissue. The amount of the hæmorrhage is influenced by the condition of the vessels, the plasticity of the blood, and the intensity of the exciting cause. In some cases it is limited to a few drops, in others it may be so large that one or more aggregations of several ounces each may be formed. The minute extravasations are usually circular, but are occasionally linear in form ; the large extravasations are of all shapes and sizes. When a considerable quantity of blood is effused, the epidermis may be elevated by it and hæmorrhagic papules, vesicles, and tubercles formed, but in the majority of cases the hæmorrhagic spots are not raised above the surface of the surrounding skin.

They can readily be distinguished from pigmentary deposits by the suddenness of their appearance, and, unlike the discolorations produced by capillary congestion, they can not be effaced by pressure. They vary in color from dark red to purple at first, but change to black, yellow, green, or brown, before they disappear. They are usually of comparatively brief duration, and are entirely removed by absorption in a few weeks. Sometimes a slight permanent discoloration may remain, but this is of rare occurrence.

Hypertrophy.—Hypertrophy consists of an abnormal increase in size of the normal tissues. It may be produced by an excessive development of the pre-existing elements, or by the formation of new elements of the same tissues. It may be limited to one of the layers of the skin, or occur simultaneously in all three layers. In callosities, the epidermis alone is involved. In ichthyosis, clavus, cornu cutaneum, and verruca, hypertrophy of both the epidermis and the corium occurs. Lentigo, chloasma, and nævus pigmentosus are caused by an increase in the amount of pigment in the rete mucosum. The epidermis, the corium, and the subcutaneous connective tissue are all involved in elephantiasis arabum, while in scleroderma the morbid process is limited to the corium and subcutaneous connective tissue. Hypertrophy of the substance of the hair and nails occurs under various circumstances.

Atrophy.—Atrophy is a decrease in either the size or number of the elements of a tissue. When it affects only the size of the tissues, it is termed simple atrophy; when their number is lessened, it is known as numerical atrophy. It may involve the greater portion of the surface, as in senile atrophy; or it may be limited to a few spots, as in vitiligo. It is most frequently observed in connection with the appendages of the skin, as in canities and alopecia, and in atrophy of the nails. It is probably due to a disturbance of the trophic system.

New Formations.—New formations are produced by the deposition of new material, and the development of new tissues in the substance of an organized structure. They may be composed of simple connective tissue, like the part in which they are developed, or they may consist entirely of cellular material. The former are found in xanthoma, keloid, and molluscum fibrosum and cicatrices, and are benign in character. The latter occur in lupus, leprosy, carcinoma, sarcoma, syphilis, and rhinoscleroma, and are malignant in the majority of cases.

The lymphatics, blood-vessels, and nerves are sometimes invaded by new formations, as in lymphangioma, angioma, and neuroma.

Parasites.—The skin is infested at times by animal and vegetable parasites, which prey upon its structures and produce more or less annoyance and inflammation by their presence and habits. The animal parasites which are most frequently met with are the *Pediculus*, or louse, and the *Sarcoptes scabiei*, or itch-mite. The *Cimex lectularius*, or bed-bug; the *Pulex irritans*, or common flea; the *Pulex penetrans*, or sand-flea, and various other insects, also attack the skin and produce considerable irritation.

The vegetable parasites are microscopic fungi which attach themselves to the skin, and continue to develop on its surface. They rarely penetrate between the layers of the epidermis, but they frequently invade the hair-follicles and attack the hairs. They sometimes attack the nails also.

Three varieties of vegetable parasites have been recognized. They are the *Microsporon furfur*, which produces the disease known as tinea versicolor; the *Achorion Schönleinii*, the fungus of tinea favosa; and the *Trichophyton*, the fungus of tinea circinata, tinea sycosis, and tinea tonsurans. They act in varying degree as irritants to the skin. Tinea versicolor is a trivial affection, but tinea sycosis and tinea tonsurans may produce extensive inflammation and suppuration. Tinea favosa may be followed by permanent loss of hair.

ETIOLOGY.

Diseases of the skin are produced by a variety of causes. A great number are secondary to morbid changes or functional disturbances in other organs or tissues, but many are the result of processes affecting the skin alone. The former are termed symptomatic or sympathetic affections, and are illustrated by urticaria, erythema nodosum, and the various exanthemata. The latter are known as idiopathic diseases, and may be produced by either internal or external causes. They are typically represented by the erythemas of heat and cold, and a number of the local hypertrophies. The relation between the skin and the other organs of the body is so intimate, however, that the distinction between these two classes can not always be made. In some cases the local causes predominate, but in others the constitutional changes are the most important. A correct appreciation of the etiological value of each can only be obtained by a comprehensive review of the origin and development of the eruption.

The causes concerned in the production of diseases of the skin may be conveniently divided into predisposing and exciting.

Predisposing Causes.

The predisposing causes are those which produce certain alterations or conditions of the general system or the cutaneous surface, by which the individual liability to the development of certain diseases is increased. They do not produce disease, but make its production more probable. The most important of the predisposing causes of cutaneous diseases are age, sex, diathesis, occupation, seasons, climate, plethora, debility, and heredity.

Age.—Many cutaneous diseases occur only during certain periods of life. Thus, tinea versicolor is a disease of adult age, while tinea tonsurans is usually a disease of childhood. Ichthyosis, sclerema neonatorum, and the congenital syphilo-dermata appear at birth, or within a short time afterward. Strophulus is an affection of the first week of infantile life. Erythema, urticaria, and eczema capitis are frequently observed during dentition. Acne, seborrhœa, and psoriasis rarely appear before the age of puberty. Carcinoma, epithelioma, and the majority of cases of pruritus are diseases of advanced life. Impetigo and intertrigo are affections of early childhood. Rhinoscleroma, morphœa, scleroderma, and acne rosacea are diseases of adult age.

Sex.—Some cutaneous diseases occur more frequently, or exclusively, in the male sex, while others are more often observed in females. Sycosis, for instance, is only found in man. Chloasma and lupus erythematosus occur more frequently in woman, epithelioma and herpes in man.

Diathesis.—Psoriasis, eczema, and erythema nodosum can frequently be traced to a rheumatic or a gouty diathesis. Persons of a lymphatic temperament are liable to recurrent attacks of intertrigo, impetigo, and pustular acne and eczema. Eczema, lupus, and scrofuloderma are common in those of a strumous diathesis.

Occupation.—Various occupations are prolific predisposing causes of cutaneous diseases. Stone-cutters, shoemakers, carpenters, machinists, and other artisans, present more or less hypertrophy of the palmar epidermis. Blacksmiths, cooks, brick-layers, and firemen are frequent sufferers from erythema, eczema, and dermatitis. Fissured eczema of the hands from the use of strong soaps is often observed among washerwomen. Plasterers and stone-masons are also subject to the same affection. Butchers, tanners, and wool-sorters are liable to ecthyma and anthrax. Workers in aniline manufactories, oil-refineries, and tar-distilleries are often attacked by violent dermatitis.

Seasons.—Many cutaneous diseases occur more frequently or are aggravated in intensity during particular seasons of the year. Intertrigo and miliaria are rarely encountered except in warm weather. Erythema multiform and furuncles are more frequently observed in the spring and autumn months. Pruritus is usually most severe in the winter. Eczema and psoriasis have been frequently noticed to disappear in summer, only to reappear with the first week of cold weather. Seborrhœa and ichthyosis are also worse during the winter.

Climate.—The influence exerted by climate in the development of cutaneous diseases is analogous to that of the various seasons of the year. Some diseases are peculiar to cold climates, others occur more frequently in the temperate zone, and some are almost exclusively limited to the tropical regions. The relative dryness or humidity of the atmosphere is also an important factor, and the clothing, diet, hygiene, and habits of the people in the different climatic regions must also be taken into consideration as exercising more or less influence upon the origin and progress of the prevalent diseases.

Plethora.—Plethoric patients are peculiarly liable to be attacked by the superficial inflammations of the skin. Intertrigo, erythema, and eczema develop in them upon the slightest cause, or frequently without any apparent cause, and in many cases prove rebellious to treatment. Pruritus and hyperidrosis are also observed in this class of patients.

Debility.—Debility is the essential predisposing cause of a great number of skin-diseases. Impetigo, ecthyma, and pemphigus rarely occur except in the weak and ill-nourished. Furuncles and carbuncles are generally more severe in the debilitated than the robust. Seborrhœa and comedo usually accompany a weak and relaxed condition of the system.

Heredity.—Heredity exercises an important influence in the production of many cutaneous diseases. The peculiar liability of some persons to be attacked by a number and variety of skin-diseases, while enjoying good health in every other respect, can be most satisfactorily explained by the supposition that they inherited a weak or susceptible skin. Among the diseases which are directly transmitted from parents to children are scrofula, syphilis, leprosy, and ichthyosis. Psoriasis and eczema frequently appear to be hereditary also.

Exciting Causes.

The exciting causes of diseases of the skin are those which directly or indirectly produce the disease. They may be divided into internal and external.

INTERNAL EXCITING CAUSES.

The internal exciting causes are those that act from within the body. They are varied and numerous, and at times are so obscure as to escape recognition. They may be seated in the affected portion of the surface, but more frequently they are to be found in disorders of distant organs and tissues, or in derangements of the general system. The most prominent of the internal causes of diseases of the skin are the systemic disturbances produced by pregnancy, dentition, vaccination, and certain medicinal substances; dietetic errors, neurotic disturbances, constitutional diseases, and disorders of internal organs.

Pregnancy.—Many women suffer during the latter months of pregnancy from herpes, eczema, or pruritus, for which no other cause can be observed than the physiological alterations which occur at that period in the blood and other tissues. Patches of chloasma are also frequently developed at the same time. The treatment in these cases should be merely palliative in character, as all the symptoms usually disappear spontaneously as soon as the pregnancy is ended.

It is a curious fact that psoriasis and other chronic affections frequently disappear during pregnancy, or are lessened in extent and severity. Lactation also exerts considerable influence on the progress of psoriasis, eczema, acne, and other disorders of the sebaceous glands. In some cases these affections are aggravated by lactation, but in the great majority of cases marked improvement is perceptible.

Dentition.—The systemic irritation produced by dentition is frequently the only observable cause of urticaria, erythema, eczema capitis, and other cutaneous diseases, but its importance must not be exaggerated. Close investigation will often result in the discovery of other and more important disorders.

Vaccination.—Vaccination is occasionally followed by the appearance of extensive erythematous or inflammatory eruptions. They are usually benign in character, and disappear in a few days. Sometimes, however, owing to the use of impure lymph, or to the depraved state of the patient's constitution, deep-seated erysipelatous inflammation may be developed, and run a tedious course, during which much destruction of tissue may occur.

Medicines.—Various cutaneous disorders have been observed to follow the use of certain medicinal substances. It is well known that an obstinate form of acne is produced by the prolonged administration of either the bromide or the iodide of potash. Antipyrin, copaiba, cubebs, and santonine frequently give rise to an urticarial eruption. Turpentine, quinine, chloral, opium, and belladonna sometimes produce an extensive erythema resembling the eruption of scarlet fever.

Dietetic Errors.—A great number of cutaneous diseases are produced by errors of diet. In some cases the food habitually partaken of is too rich or too highly seasoned ; in others it is too poor in quality, and insufficient in quantity, to furnish an adequate amount of nourishment to the tissues. In many persons cutaneous eruptions are invariably produced by special articles of food. Urticaria is frequently developed after a meal during which fish, oysters, or strawberries have been eaten. Obstinate pruritus, erythema, and eczema are known to be frequently due to a diet of oatmeal or buckwheat. Acne and urticaria are often produced or aggravated by fish, cheese, pastry, ale, and beer.

Neurotic Disturbances.—Neurotic disturbances are the principal factors in the production of a great many cutaneous diseases. In some cases the morbid process is seated in the central nervous system, but in others it involves only the peripheral terminations of the nerves of the affected part. Prominent among the affections which are due to disturbances of innervation are urticaria, herpes, dermatalgia, pruritus, and a number of hypertrophies, atrophies, and new formations.

Constitutional Diseases.—Among the constitutional diseases which produce cutaneous disorders are pyæmia, syphilis, scrofula, scurvy, malaria, chlorosis, Addison's disease, and the various exanthemata.

Disturbances of Internal Organs.—Functional and organic disturbances of internal organs are the exciting causes of a number of cutaneous eruptions. Pruritus and eczema of the lower extremities are frequently due to cardiac degeneration or valvular disease. Diabetes is a frequent cause of pruritus and furuncles. Acne, eczema, and urticaria are often dependent upon some genito-urinary disorder, and disappear when it is removed. Bright's disease and other affections of the kidneys are frequently the direct exciting cause of erythema and eczema. Uridrosis is the result of complete suppression of the urinary secretion. Acne, eczema, and erythema nodosum are often produced by disorders of the liver. Derangements of the alimentary canal, however, are the most frequent causes of all cutaneous diseases of an erythematous or inflammatory type, and should be invariably sought for and promptly relieved.

EXTERNAL EXCITING CAUSES.

The external exciting causes of diseases of the skin are those which act from without the body. They are varied and numerous. The most important are improper clothing, extremes of heat and cold, mechanical and chemical irritants, personal habits, scratching, parasites, and contagion.

Improper Clothing.—Improper clothing is a common cause of cutaneous diseases. Erythema, eczema, pruritus, and miliaria are often developed and perpetuated by the use of flannel under-clothing. Colored stockings dyed with impure or irritating materials frequently produce severe and extensive cutaneous inflammations.

Heat and Cold.—Heat and cold are also important factors in the production of cutaneous diseases. Exposure to intense heat, whether it be artificial or that of the sun, is a frequent cause of erythema, dermatitis, eczema, and miliaria. A variety of fissured eczema, ordinarily known as "chapping of the hands," is a common result of exposure to cold. If the cold be intense it may be followed by the development of chilblains, or the death of the exposed part.

Mechanical and Chemical Irritants.—Many cutaneous diseases are the result of mechanical irritation. Tight shoes or stockings produce corns and various excoriations or ulcerations of the feet. Tight garters often produce an eczematous condition of the lower extremities. Extensive erythemas and eczemas are sometimes caused by ill-fitting under-clothing. Various callosities and other hypertrophies are developed in carpenters, stone-cutters, shoemakers, and other artisans, by the pressure and friction to which certain portions of the integument are constantly subjected during working-hours. Intertrigo is produced and aggravated by the pressure and friction of the apposing surfaces.

Chemical irritation is a more frequent and more serious cause of cutaneous diseases. Severe inflammations may result from the use of arsenical cosmetics or depilatories. Artificial-flower makers, manufacturers of wall-paper, and workers in acids, alkalies, aniline dyes, and other chemicals, are subject to various eruptions which are the result of the irritating action of these materials on the skin.

Severe cutaneous inflammation may also be caused by the incautious application of any of the ordinary rubefacients or epispastics, or by contact with various poisonous plants. Various eruptions may likewise result from the external use of arnica or the sulphur and mercurial preparations.

Personal Habits.—The habits of the individual are often important factors in the production of cutaneous diseases. Eczema and acne rosacea are frequently the result of alcoholic indulgence. Acne may be due to excessive smoking. Personal uncleanliness is also a cause of cutaneous disease in some cases; but, on the other hand, too much attention may be given to cleanliness, and the integument injured by the frequent use of strong soaps.

Scratching.—Many cutaneous lesions are produced, and all preexisting eruptions are intensified, by scratching. In urticaria it increases the size and number of the wheals, and in eczema it increases the inflammation and exudation. Scabies, prurigo, and pediculosis are increased in severity by it, and an insignificant pruritus may be converted by it into an extensive inflammatory disease. In protracted cases it may produce considerable pigmentation and thickening of the skin.

Parasites.—A number of cutaneous diseases are produced by animal and vegetable parasites. The hair and nails also suffer from their ravages. The vegetable parasites are the *Achorion Schönleinii,* or the fungus of tinea favosa; the *Microsporon furfur,* which produces the discoloration known as tinea versicolor; the *Trichophyton,* or ring-worm parasite, and the fungus of *Madura* foot. The animal parasites are the *Sarcoptes scabiei,* or itch-mite; the *Pediculus,* or louse; the *Cimex lectularius,* or bed-bug; the *Pulex irritans,* or common flea, and a number of other insects, which under certain circumstances attack the skin and produce more or less irritation and inflammation.

Contagion.—Contagion is a prolific source of cutaneous diseases. Impetigo contagiosa, small-pox, measles, scarlet-fever, equinia, and erysipelas are frequently communicated by direct contact. Many of the cutaneous lesions of syphilis are contagious; likewise the parasitic diseases, but some are more readily transmitted than others. Individual susceptibility is an important factor in the propagation of all diseases of this nature. Some persons are readily affected by the poisonous germs or spores, while others may be exposed to them with impunity.

TREATMENT.

The adaptation of the proper treatment in diseases of the skin requires on the part of the physician a thorough knowledge of general medicine. The previous history—including any idiosyncrasies which the patient may have, the present constitutional and local condition, the nature of the affection and its cause, if apparent—should all be looked into from the standpoint of general medicine, and rational deductions drawn from these considerations as to the proper method of treatment. As a rule, the deductions, after careful inquiry into all the circumstances just briefly recounted, will lead the physician in the majority of cases to employ both constitutional and local remedies. The most decided, rapid, and certain results are generally obtained from constitutional treatment, which assists frequently the action of the topical remedies which may be employed. In some affections it may alone be demanded, or simple local treatment will answer, while in still others it becomes necessary to employ both at the same time. Again, constitutional and local in conjunction may be necessary at one stage of the disease, and should only be used singly at another. Further, the remedy or remedies employed, whether for systemic or local action, may be proper at one period and useless or harmful at another. Great care must, therefore, be exercised, to be able to know from a general knowledge of medicine just what to do at the proper time.

CONSTITUTIONAL TREATMENT.

The general health should be carefully examined, and, if impaired or deranged in the least, should be corrected by suitable constitutional treatment. It may be necessary to administer acids, or one of the various tonics, or alkalies—particularly the natural alkaline waters—alteratives, anodynes, or hypnotics, or various other remedies, to make a thorough impression to relieve or cure the eruption. It often becomes necessary likewise to use diaphoretics, or to increase the action of other organs of the body by the employment of aperients, cathartics, and diuretics, particularly in inflammatory diseases in which there may be imperfect or defective secretion and excretion. The principal means employed may be referred to as follows :

Hygiene.—The observance of the commonly accepted hygienic laws in diseases of the skin is all-important, especially after the eruption is developed, or has become chronic. The first and most essential measures which should receive attention are ventilation and bathing. The latter will be found in some acute affections to be contra-indicated, while in others especially of a subacute or chronic nature it may be followed by the most happy effect. Dress for all parts of the body, but more particularly for that which comes in contact with the affected surface, requires just what may be suitable to the case under consideration. Next in importance to dress are rest and exercise, the former being very frequently necessary in some of the inflammatory diseases, especially in their beginning, and the latter, judiciously and properly used in later stages, or in the chronic forms. Outdoor exercise, with plenty of good fresh air and sunlight, should be taken, if possible ; or, if not, passive exercise, or massage, may be resorted to, if necessary. A change of climate will often in some of the more obstinate diseases, especially those due to impairment of the nervous system, be followed by beneficial results.

Diet.—Attention to diet is often more important than the administration of remedies. The quality and quantity of the food must be regulated according to the disease and the condition of the patient. A diet restricted to certain articles of food may be demanded, or a special dietetic course necessary. Each case requires to be carefully looked into by the physician, and the amount and character of food regulated as may seem judicious and suitable.

Cod-liver Oil.—In diseases of the skin, cod-liver oil is both a good food and a valuable remedy. It is the remedy above all to employ in those cases in which the health has become affected through faulty assimilation, as in eczema, scrofuloderma, and syphilis. It is also serviceable in many of the chronic forms of skin-diseases. It may be administered in from one fluid drachm to half an ounce, either alone or as an emulsion. A few drops of ether to the dose may overcome any unpleasant effect from it, and assist its absorption. If the oil can neither be retained nor assimilated, it may be given* hypodermatically, one or two drachms being injected into the loose cellular tissue of the back. I have recommended and demonstrated the utility of employing it in this manner in scrofuloderma, paræsthesia, and other cutaneous diseases depending upon a lack of nutrition of the system. If a large-sized hypodermic syringe be used, and the oil deposited deep into the cellular tissue, it usually disappears in from twelve to twenty-four hours without any unfavorable results. That the oil is absorbed and assimilated can be demonstrated by injecting the same quantity of castor-oil—the viscidity of the latter being overcome with an equal amount of almond-oil—and the result will generally be a satisfactory laxative action within one or two hours' time.

Phosphorus and its Preparations.—Phosphorus is known to have a special action in cutaneous diseases depending upon nerve-debility. It has been followed by benefit in psoriasis, eczema, lupus, herpes zoster, and pemphigus, due to the above condition. Piffard recommends it in large doses to promote the rash in exanthematous diseases. The dose of phosphorus is from one twelfth to one one-hundredth of a grain dissolved in almond- or sweet-oil, or given as a pill. Instead of phosphorus, the phosphide of zinc is frequently prescribed in form of pill in one thirtieth to one fiftieth of a grain. The best preparations of phosphorus are the sirup of the lacto-phosphate of lime, compound sirup of the phosphates, and the sirup of the hypophosphites. These compounds are especially serviceable in eczema of children depending upon malnutrition, and in boils, carbuncles, and some cases of papular and pustular acne.

Iron and its Preparations.—The preparations of iron are invaluable in a number of skin-diseases. They are indicated in all eruptions, as eczema, psoriasis, sycosis, syphilis, and scrofula, which are due to a depraved state of the system. The iodide of iron or the sirup exercises at times a beneficial effect over pustular eczema, and in chronic cases of syphilis. Many cutaneous eruptions due to anæmia and chlorosis are favorably influenced by one of the preparations of iron. The tincture of the chloride in large doses, one half to two drachms every two or three hours, certainly assists in arresting erysipelas. Iron may be advantageously combined with strychnia, arsenic, quinine, and other remedies, or administered in the form of a chalybeate water.

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* "The Treatment of Disease by the Hypodermatic Injection of Oil." Read by the author before the Section of Practical Medicine, at the meeting of the American Medical Association, June, 1885.

Quinine.—Quinine, by its action upon various inflammatory diseases of the skin, is one of the most valuable agents at our disposal. In erysipelas it is a remedy of great utility, while in variola, scarlatina, morbilli, and rubeola, it can be used with advantage in reducing excessive fever. It is an appropriate remedy to employ in diseases arising from malaria, or from an impoverished state of the system, as in impetigo, impetigo contagiosa, ecthyma, boils, and sycosis. Affections depending upon a derangement of the nervous system may also be benefited by it.

Arsenic.[*]—Arsenic is useful in some affections of the skin, and useless in others. It is also valuable in some stages of eruptions, and absolutely injurious in others. The disease, as well as the stage of the eruption, must be carefully considered before it is employed. It has been shown to possess an action upon the epidermis, and is especially beneficial in diseases involving that part of the skin. Administered to animals, especially the horse, it improves nutrition and power, and gives a sleek and glossy appearance to the coat. Gubler,[†] in speaking of this effect, says Tschudy, in his account of the arsenic-eaters of Lower Austria, remarks that it improves their appearance and gives them additional power: "They acquire great strength, have remarkable agility, climbing the steepest mountain-sides; . . . the young girls, veritable rosebuds, as colored as ripened apples; they acquire flesh even; and, as fine skin is never seen in their people, over bones thinly covered, their skin becomes clearer and transparent." Arsenic, the same author states, will not always give such admirable results, and, when its *habitués* come to require considerable doses, serious effects may ensue. From what has been recounted, the wonderful power will be observed that this metal possesses of modifying and changing the epidermis.

Administered for its effect upon the skin, the action of arsenic is usually slow, often requiring some time before a given result is obtained. When an impression has resulted from its use, it should be persistently continued, but in smaller doses, for a time after all symptoms of the eruption have vanished. It is contra-indicated in the inflammatory or acute stage of all eruptions, and if employed then may be followed by injurious effects by its stimulating action on the epidermis. In other words, it should not be given in active cell-proliferation, but during the stage of decline or chronic period of eruption, in which the affection is situated in the superficial portion of the skin. It is a useful remedy in psoriasis and eczema, after the inflammatory period of these diseases. It often acts happily in obstinate and chronic cases of papular eczema, pemphigus, lichen ruber, and at times in secondary syphilis. It can be taken by most persons, or administered hypodermatically for a very long time, without injury to the health. Some persons are at times quickly and easily affected by small doses; others, who have some alimentary disorders, will not tolerate its internal administration. Its success, therefore, often depends upon a judicious manner of administration so as to overcome these objections and permit it to be acceptably received by the tissues. If the subject has a peculiar idiosyncrasy, beginning with a minimum dose, or combining with it either opium, bromide of potassium, quinine, pepper, etc., or a bitter, or an aperient, will often cause it to be better borne, and at times enhance its therapeutic value.

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[*] "The Useful Administration of Arsenic in Diseases of the Skin," by Edward L. Keyes, M. D. Journal of Cutaneous and Venereal Diseases, August, 1886. New York.

"The Question of the Value of Arsenic in Diseases of the Skin," by W. A. Hardaway, M. D. Ibid.

[†] Gubler's Therapeutics, page 278.

If arsenic is not tolerated by the alimentary canal, the same result may be reached by the hypodermatic method of administration. It may therefore be employed according to the indications in each case, either given by the stomach or hypodermatically, to produce its systemic effects. The preparations of arsenic usually employed are arsenious acid, the arsenite of sodium, and the solution of arsenite of potassium (Fowler's solution), or the solution of arsenite of sodium (Pearson's solution). In the majority of cases I prefer using the arsenious acid or the arsenite of sodium to any one of the solutions of arsenic. My reason for this preference is, that arsenic solutions are often uncertain, being poorly or improperly prepared, or, if kept on hand too long, a chemical change may take place, which lessens their activity. Arsenic preparations are often thus given by the most skilful without producing any decided effect. If the physician is certain beyond all doubt that the solution is fresh and properly prepared, it will be equally as effective as the arsenious acid or the arsenite of sodium. The advantage, however, in giving the latter is that their effectiveness, if arsenic will have any over the disease, is certain beyond all doubt. While I have employed the iodide of arsenic, and the solutions of the arsenite of ammonia, and the iodide of arsenic and mercury (Donovan's solution), I have not had as good results from their use as from the other preparations already named. Arsenious acid and the arsenite of sodium are not only preferable for their therapeutic effect, but they are likewise a ready and convenient form of administering arsenic either alone or combined. They can be prescribed to begin with in a very minimum dose, from one one-hundredth to one tenth of a grain, given as pills three times daily, which can be carried around and readily taken by patients without the least trouble. It is best to administer the pills immediately after a meal, when, according to the views of Ringer, the arsenic becomes absorbed by the lacteals, and through them mixed with the blood; while, if the stomach is empty, it is absorbed by the veins, and, passing into the liver, is separated with the bile. The dose of arsenious acid or its salt can be increased, given in the above manner, until it reaches the limit of toleration, which may be recognized by the metallic taste, increased flow of saliva, itching and swelling of the eyelids, and an unpleasant sensation over the epigastrium. The patient during the period that arsenic is being administered should have all the secretions kept in an active condition, and should be under the constant observation of a physician. In the event that the medicine shows the slightest evidence of producing its constitutional effect, the dose should be decreased, or the remedy withdrawn, and one of the bitter tonics substituted for a time until it can again be safely resumed. If these precautions be observed, no unexpected or violent action need result from its administration. I have had numerous cases in which arsenic in one of these forms has been given for a very long time with great tolerance and without the least injurious effect. I believe that, in many instances in which it has suddenly given rise to toxic effects, the accident has been due to subjects pursuing an arsenic course of treatment without being under the constant observation of the physician. The prescription ordered two, three, or four weeks previously has been renewed time and again, the patient only requesting advice when some unexpected symptom appears.

In using the solutions of arsenic for their systemic effect, the best and most serviceable are the solutions of the arsenite of potassium (Fowler's) or the arsenite of sodium (Pearson's), from one to twenty drop doses after meals, either administered alone or given with an aromatic water, or simple bitters.

It is well, in order to avoid any idiosyncrasy that the patient may have, to begin always with the minimum dose, viz., from one to three drops.

Some practitioners prefer, in giving arsenic in a solution, to use the arsenite of sodium, which it is said is better and more easily absorbed than that of the arsenite of potassium. The solutions of arsenic, for the same reason that has been mentioned when speaking of arsenious acid and the arsenite of sodium, should always be given after a meal. If they agree with the patient, the dose can be gradually increased, drop by drop, until a decided effect is apparent on the eruption.

The solutions of arsenic, like the solid preparations, can often be advantageously combined with other drugs, which generally enhance their value and render them easily borne. They can be prescribed with the tinctures of cinchona and serpentaria, the bromide of potassium, etc. In cases in which the use of arsenic produces disfiguring acne-spots, the addition of the bromide of potassium to the prescription will either prevent or lessen their development.

I will now pass to the consideration of the systemic effect occasioned by the introduction of arsenic beneath the skin into the subcutaneous areolar tissue. By this method the same physiological and therapeutic effects occur as when the metal is given by the stomach. This fact was fully demonstrated by Dr. C. B. Radcliffe,* who injected for the first time on January 12, 1866, the solution of the arsenite of potassium under the skin of a patient suffering from chorea, with good results. Later, M. Lipp † injected arsenious acid in psoriasis and chronic eczema, which he reported as successful. Since that time the same method has been used and commended in various parts of the world. It is, however, to be regretted that this ready means of introducing arsenic rapidly and beneficially into the system is so little used by physicians. I regard it as being the very best manner for producing a speedy, powerful, and effective impression upon the diseased skin. The arsenic is not altered, changed, or lessened in its action by a diseased stomach, the presence of food, the condition of the fluids, the veins, the nerves, and the liver, and consequently its therapeutic effects are produced to the fullest degree. This method is especially adapted to the treatment of obstinate cases of psoriasis and eczema. It will spare the digestive organs, and will abridge very much the duration of treatment.

I began testing this excellent mode in 1876, and after some years of experience have found that I can often arrest and cure some obstinate cases which resist arsenic given by the stomach. Mercury given by the stomach for syphilis will sometimes prove ineffective, but when used hypodermatically, cures often follow; so arsenic given hypodermatically in some instances will produce more marked systemic effects. I began by using the solution of the arsenite of potassium diluted; later, a weak solution of arsenious acid; and now I generally administer either the arsenious acid or the arsenite of sodium in solution. Some physicians regard the latter preparation as the most acceptable to use, as it is a higher oxide than the arsenite of potassium, is less irritant in its local action, and not so liable to be followed by toxic symptoms. I usually have the arsenite of sodium made into pellets of various strengths, beginning with one tenth of a grain, one of which is dissolved in ordinary water (distilled water, however, as a medium is always regarded as the best), and deposited daily into the areolar tissue over some part of the back. In the course of a few days the dose is gradually increased until some evidence of the action of the metal is observed either upon the disease or by its constitutional effect. I have in this manner given as high as from one quarter to a half, and in one instance one grain daily, without any injurious results. The effect is usually very speedy, varying, of course, in different individuals; in some it was observed in two weeks, in others from six to eight weeks. As soon as either the systemic or local action of arsenic is noticed, the dose should be decreased until the minimum amount is reached. In case the disease persists, it can again be gradually increased until an impression is once more apparent.

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* Reynolds's System of Medicine, vol. i., p. 712.

† Archiv für Dermatologie und Syphil., No. 3, 1869.

Antimony.—Tartar-emetic, a well-known and useful drug, from its constitutional effects in many cutaneous diseases, fell into disuse until recently, when excellent results were reported from its administration by Morris, of London. It is quickly diffused into the circulation, which it lessens, and assists in eliminating the waste products by the alimentary canal, the kidneys, and the skin. In most of the inflammatory affections, with elevation of temperature, it will be found to exercise a beneficial influence in reducing the exudation and the temperature. It is of undoubted value in the eruptive fevers, and also in acute eczema and psoriasis, by allaying the irritation and congestion of the skin. It often acts well in chronic eczema, psoriasis, scrofuloderma, syphilis, and other cutaneous eruptions. Antimony is best given as the tartrate of antimony and potassium in from one twentieth to one tenth of a grain dose every four to six hours; or the wine of antimony, in from five drops to half a drachm, repeated in the same manner.

Turpentine.—Clinical experience has demonstrated that turpentine is a valuable remedy both in its direct and indirect action upon the skin. In moderate doses it stimulates the vaso-motor nervous system, leading to an increase, followed by a diminution, of the capillary circulation. This important action of turpentine places it among one of the most useful drugs in lessening inflammation of the skin in psoriasis and eczema, attended with much dilatation of the arterioles and thickening of the skin. Crocker * reports very good results from its employment in the diseases just named. He recommends the oil of turpentine in from ten to forty minims given in an emulsion three times daily after meals. Barley-water, usually about a quart a day, is recommended from the beginning of the treatment by him, to avoid irritation of the urinary organs; the Chian turpentine in from five to fifteen grains was followed by improvement in pityriasis rubra. Gould also reported through Crocker good results from the latter preparation in a case of epithelioma and scirrhus; the pain in both was said to be lessened and the growth retarded. Benefit has resulted in my experience in chronic psoriasis, eczema, and purpura from the use of both the oil and the Venice turpentine.

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* "On the Internal Administration of Turpentine in Cutaneous Diseases." Read before the Hunterian Society, London, January 14, 1886.

Mercury and its Preparations.—Mercury is an effective antiphlogistic agent. In small doses it improves the quality cf the blood, especially increasing the red corpuscles. By this action it forms a powerful agent for combating and treating syphilis. It can be employed with advantage in minute doses in the treatment of eczema accompanied with severe inflammatory symptoms, particularly in children having the pustular variety. It is also of value in small doses in the treatment of many other inflammatory affections of the integument, among which may be mentioned lupus, sycosis, chronic eczema, psoriasis, and scrofuloderma. Mercury may be introduced into the system by inunction, fumigation, the hypodermatic method, or by the stomach. In the treatment of obstinate and chronic forms of syphilis, the hypodermatic method is to be preferred. It is cleanly, more economical, and more rapid in its action in arresting the disease. If mercury is administered by the mouth, the corrosive chloride, the mild chloride, blue pill, mercury with chalk, the protiodide, and the biniodide, are the preparations ordinarily used. The drug should usually be given in the beginning in very small doses, and its effect watched in order to prevent ptyalism. A minute quantity, as the one twentieth to the one sixtieth, for instance, of the corrosive chloride, or the mild chloride, well rubbed up with sugar, or triturated, as recommended by Piffard,* and given in frequently repeated doses, acts more decidedly than larger doses at longer intervals. Mercury may be administered alone or given in combination with other substances; the best example of which is the liquor arsenici et hydrargyri iodidi, which in from five to fifteen drop doses is of utility in syphilis, sycosis, and in the various forms of cancer.

Chlorate of Potassium.†—This powerful but valuable remedy is useful in the treatment of all diseases depending upon suboxidation or defective nutrition, secretion, excretion, aëration, and molecular metamorphosis. In small doses it increases the appetite, and in large or excessive doses it may, like any other potent but valuable remedy, produce an injurious or poisonous action. Given in small or moderate portions it is a most effective remedy for abating and often curing many pustular diseases. It is beneficial in ecthyma in debilitated subjects. In boils, carbuncles, sties, pustular acne, pustular eczema, and sycosis it diminishes the tendency to suppuration, and if the latter stage has been reached, will assist largely in arresting it. A happy effect from the drug will frequently be experienced from its employment in scrofulous subjects suffering from enlarged and suppurating glands, unhealthy ulcers, papules, pustules, and other lesions arising from this peculiar state of the system, and accompanied with more or less constitutional impairment. In many such typical cases, and some even less so, the continued use of the drug in moderate doses will tone up the digestive organs, increase the appetite, and lessen the formation of pus. It will, by thus adding tone and vigor to a previously weakened system, prepare the patient for the use of other measures, such as good, nourishing food, exercise, fresh air, and perhaps tonics, all of which are so necessary for thoroughly eradicating scrofula. Purpuric and broken-down syphilitic patients are often benefited by chlorate of potassium. It will also increase the quantity of urine, and may be discovered in that secretion. The dose of the drug is usually from one half to thirty grains, freely diluted with water, every three or four hours. The dose will have to be graded according to the condition of the patient; the pale, weak, and enfeebled bear much larger doses than the apparently vigorous.

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* "A Treatise on the Materia Medica and Therapeutics of the Skin," pp. 61–63, New York, William Wood & Co., 1881.

† See paper by the author, "The Therapeutic Action of Potassium Chlorate." Transactions of the American Medical Association, vol. xxxiii., pp. 131–149.

Iodine and its Preparations.—The preparations of iodine have a large range of usefulness in affections of the skin. They are said to influence the elimination of waste products from the system. Iodine is effective in small doses in the treatment of scrofula and lupus. The iodide of potassium or the iodide of sodium, but preferably the former salt, is one of the most effective remedies in the treatment of the tertiary stage of syphilis. As iodine and its preparations may produce a variety of cutaneous eruptions, they should be cautiously used. The usual dose of the tincture of iodine is from one to five drops, and of the iodide of potassium or sodium from five to sixty grains. In the tertiary form of syphilis, particularly if attended with ulceration, large doses should be administered, in order to produce a decided effect.

Sulphur and Calx Sulphurata.—Sulphur given internally in from one to two drachms in sirup, honey, or milk, may produce excellent results in glandular affections, and in some inveterate cases of eczema. The most elegant and useful preparation of sulphur is calx sulphurata. It will, in from one-quarter to one-grain doses, three or four times daily, prove a useful remedy in acne, and in boils and abscesses. It is said to lessen the formation of pus. A natural sulphur-water, as the

Blue Lick water, of Kentucky, can be prescribed with advantage in the same class of affections.

Tar, Carbolic Acid, and Creasote.—These remedies are sometimes serviceable given internally. Tar, or one of its products, may in some cases lessen cutaneous irritation, but in others increase it. Chronic eczema, psoriasis, lichen, and prurigo may be influenced favorably by the administration of either tar, carbolic acid, or creasote in small doses.

Local Treatment.

The external means which are employed for relieving or curing cutaneous diseases are innumerable. Some have value, while others are useless and hardly worth describing. Among those that have been found effective are the following :

Baths.—Baths are essential for the preservation of health, as well as to prevent and assist in eradicating disease, by draining from the system effete products which are often the active factors in many affections of the skin. They not only have this general effect, but by their local action they remove from the skin all abnormal products, such as irritating discharges, scales, crusts, and all extraneous matter. They soften the hardened integument, lessen vascular excitement, relax muscular tension, soothe, astringe, or stimulate the organ, and relieve irritation and inflammation, and assist the action of both the constitutional and additional local treatment to be employed.

Among the various forms of baths that are serviceable are the water, the medicated water, the hot air, the vapor, simple and medicated, and the electro-vapor bath. Brief reference will be made to those just mentioned, and some others, as follows :

The water-bath should be composed of soft or rain water, procured from tubs, tanks, or cisterns in which it is caught, or from creeks, rivers, and most springs. Hard water, if possible, should always be avoided, or made soft by adding potash or soda in the proportion of one hundred grains of either to the gallon of water, as, owing to the presence especially of lime sulphate in it, the skin, particularly if sensitive, may be irritated or inflamed. The water-bath, if properly used, either cold, tepid, warm, or hot, is often of great value in the inflammatory and hypertrophic affections, as in eczema, psoriasis, pityriasis, dermatitis, and ichthyosis.

The continuous water-bath, recommended by Hebra, so arranged that patients can remain in it for a long time, is useful in the treatment of pemphigus, chronic eczema, psoriasis, and burns.

Medicated Water-Baths.—These baths generally consist of from twenty to thirty gallons of water, which may be of any temperature, but usually about 95° Fahr. The following are the principal varieties and the formula employed in their preparation :

Acid Baths.—Hydrochloric, nitric, or one of the mineral acids, one ounce. Serviceable in prurigo, lichen, and chronic scrofuloderma and syphilis.

Alkaline Baths. — Bicarbonate of sodium or borax, two to ten ounces, but generally about six ounces. Useful in very many varieties of cutaneous diseases attended with irritation of the part, especially in eczema, dermatitis, psoriasis, paræsthesia, erythema, urticaria, lichen, and prurigo.

Astringent Baths.—Alum, from four to six ounces, or a decoction made with half a pound of white-oak bark, added to the usual quantity of water. Used in chronic eruptions, especially in eczema and in purpura.

Bromine and Iodine Baths.—The former is prepared by using twenty to forty drops of bromine with two to four ounces of iodide of potassium, and the latter by adding one half to one drachm of iodine to one or two ounces of liquor potassa and the required quantity of water. Employed in scrofuloderma, syphilis, elephantiasis Arabum, vitiligo, and in excess of pigment.

Emollient Baths.—Potato-starch, gelatine, linseed, or marsh-mallow, from one to four pounds. They often allay active irritation and inflammation, and can be used in conjunction with the alkaline bath with decided effect. Of value in erythema, eczema, urticaria, dermatitis, herpes, and psoriasis.

Mercurial Baths.—One or two drachms of the corrosive chloride of mercury with a drachm of hydrochloric acid.

Potassium Sulphuret Baths.—From one to six ounces of the above salt to each bath.

The Hot-Air Bath, as constructed in the Hospital for Diseases of the Skin, in Philadelphia, consists of a closed chamber, six feet square by eight feet in height, provided with ventilators. The heat is carried to it by flues which surround all sides, and thus radiates from all parts of the chamber. The temperature is indicated by a thermometer fixed in the room, which can be watched by an attendant from the outside, and is usually maintained at from 130° to 140° Fahr. It may be inconvenient for patients at times to leave their homes to visit an institution for this form of bath. For those so situated the bath can be constructed as follows : The patient is placed in a nude condition on a perforated or cane-bottom chair, and the body from the neck is enveloped in a blanket. A lighted spirit-lamp of good size is then placed beneath the chair, and, care being exercised to retain as much as possible of the heated air in contact with the body, free perspiration soon follows, the procedure being continued for from ten to twenty minutes, after which the patient is rubbed dry and placed between warm blankets or sheets. This form of bath is of value in eczema, psoriasis, pityriasis, ichthyosis, and paræsthesia. It makes the sudoriparous and sebaceous glands active, equalizes capillary circulation, and cleanses the skin of all abnormal products.

The Vapor-Bath, Simple and Medicated, is arranged in a similar manner as the hot-air bath; the vapor being conveyed by a series of pipes instead of hot-air flues. The temperature is indicated in the same way, and is maintained at from 115° to 140° Fahr. Given at home, the patient is prepared in a similar manner as described for the hot-air bath. An ordinary tin pan, or any vessel containing boiling water, is first placed under the chair, and a brick or good-sized stone, previously heated red hot, is next carefully deposited in the water, a portion of it being left uncovered by the fluid, if it is desired to sprinkle over the surface a drug with which to medicate the bath. The vapor quickly ascends, causing copious perspiration, which may be continued from ten to thirty minutes, and the patient is afterward treated as in the hot-air bath. If the medicinal substance employed to impregnate the bath is difficult to volatilize, it may be better accomplished by placing a small tray and spirit-lamp beneath the chair, as the drug may be dissolved in water and afterward evaporated by the lamp. The following medicinal agents can be volatilized and used in the quantities named: Mercury and its salts, more particularly calomel or the red sulphuret of mercury, from one half to a drachm; tar, naphthol, the balsams, especially Peruvian balsam, one to four drachms; carbolic acid, and the essential oils, five to thirty drops; sulphur, from one half to two ounces. The simple vapor-bath is similar in action to the hot-air bath, with the addition of slightly stimulating and making the skin more soft and pliable. It is beneficial in acne, eczema, and prurigo, and in all diseases accompanied by heat, dryness, and irritability of the skin. Of the medicated vapor-baths, the mercurial is invaluable in syphilitic eruptions, especially when mercury is not well borne by the alimentary canal; the tar and others, in chronic eruptions, particularly in eczema and psoriasis. The sulphur vapor-bath is useful in soothing the irritated surface in obstinate and chronic cases of scabies. Finally, during a vapor-bath, electricity may be brought in contact with the skin, either as the galvanic or faradic current. The so-called electro-vapor bath may give good results in hypertrophies of the skin and in the neuroses, especially in paræsthesia.

As it has been shown that the fluid and the medicinal substances contained in baths are absorbed by the skin, some benefit may result from their direct systemic action. The principal value of baths, however, is in their direct effect upon the skin and their indirect impression upon the system. They should always be used, however, with caution, and never given or persisted in if contra-indicated by any constitutional weakness or disease. With the aged and the very young they should be used carefully. Baths should never be given upon a full stomach; the period for continuing in the bath should usually be short, and the bather should be guided by the temperature of the medium in relation to the heat of the body. The various baths, if used judiciously, are important and useful auxiliaries in the treatment of diseases of the skin.

Soaps.—Soaps* are useful in assisting to maintain the skin and the body in a healthy condition, and are frequently valuable aids in the treatment of diseases of the integument. They can be employed either as the potash or soft, or the soda or hard.

Soft Soap.—Potash soap, sapo mollis, sapo viridis, brown soap, black soap, soft soap. Potash soap, which contains a certain excess of alkali, is made with either an animal fat or a vegetable oil; olive-oil with potash being often employed. When well and properly made, it should be of the consistence of jelly, and should not flow out if the vessel containing it is inverted. It ought to be of a brownish, greenish, or olive-green color, soft and perfectly homogeneous, with a strong, caustic odor, and an acrid, alkaline taste. It should contain no particles of sand, and readily dissolve in alcohol with little or no residue. These characteristics will, of course, vary much according to the manner in which the soap is made. The best potash soap which has a definite strength is imported from Europe, and obtained from either Duvernois, of Stuttgart, or from Bassermann and Herschel, Mannheim, Germany. Potash soap, when applied to the skin, softens and macerates the epidermis, or even destroys it—the effect on the cutaneous surface varying according as it is applied lightly or with great friction, as well as to the length of time it is left in contact with the parts. The variable and uncertain effect that occasionally follows its use, denuding the epidermis at one spot and making no impression whatever at another, is due to the soap being neither properly nor well prepared. Potash soap may be used alone or dissolved in alcohol, as recommended by Hebra, in the proportion of two parts of soap to one of alcohol, which will remove its unpleasant smell. To make it more elegant, and free from any particles of sand that may be present, the solution is allowed to settle, or filtered and scented with the spiritus lavandulæ, and it is then known as spiritus saponatus kalinus, or Hebra's spirit of soap.

Mollin,† which is a modified soft soap, has recently been highly extolled in Germany as a useful vehicle for applying various substances to the skin.

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* The brief description of soaps is abstracted from my paper "On Soaps, especially Medicated, in Diseases of the Skin." For a detailed account, see Transactions of the Medical Society of Pennsylvania, vol. xvii., pp. 190–205.

† "Mollin," Jackson adds, in the New York Medical Journal, November 6, 1886, "is prepared from the best and freshest kidney-fat and suet and the finest Cochin cocoanut-oil. The fat is saponified cold with potash and some soda, so that to one hundred parts of fat there are forty parts of lye. Into the mass thirty per cent of glycerine is

Soda or hard soap, which contains soda as the base, and is generally a nearly neutral soap, may also be made with either an animal or mineral fat or a vegetable oil. It differs from the potash soap in being hard, or comparatively so, and in having a less stimulating or destructive action on the skin. If soap is needed, either to cleanse the surface or for its local effect, it is often best to employ first the soda and then subsequently, if necessary, the potash soap. The field of usefulness of both may be rendered more extensive and effective by medicating them with such agents as alum, arnica, boro-glyceride, camphor, carbolic acid, chamomile, eucalyptol, naphthol, salicylic acid, mercury, sulphur, and tar.

Oils.—The oils employed locally in the treatment of cutaneous diseases are either bland or stimulating. Among the former are olive-oil, linseed-oil, oil of sweet almonds, cotton-seed oil, and cod-liver oil. They are valuable for softening and removing scales, crusts, and extraneous matter from the surface. They are also useful for protecting and soothing the irritable and inflamed skin in the eruptive fevers. The tar-oils, as the oil of cade, the oil of juniper, the oil of ergot, and chlorinated oil, are examples of the stimulating variety. They are particularly serviceable in many affections of the skin. Chlorinated oil, as I have demonstrated, often acts well in animal parasitic diseases, especially scabies. The oil of ergot* is also a valuable remedy in seborrhœa of the scalp and loss of hair.

Poultices or Cataplasms.—Various substances which retain heat and moisture can be used as poultices, such as bread, flaxseed-meal, potato-starch, etc. Water, milk, or some other boiling fluid, should always be used in preparing poultices. They should be applied as hot as comfort will permit, and should be covered, if possible, with oiled silk to retain the heat and moisture, or be frequently changed. Cloths dipped in boiling water, partially wrung out and at once applied to the part, and covered with oiled silk, make an excellent poultice. The most soothing and the most effective of all poultices to resort to in cutaneous diseases is composed of starch. Poultices act very often in a happy manner in dilating the vessels, relaxing the muscular tension, and assisting in removing the hard, tense, and high inflammation and the sensitive condition of the nerves

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worked, and the whole carefully heated. When properly made, mollin has a pale-white color with a slightly yellow tint, and an agreeable, smooth, soft consistence. It is not essentially affected by exposure to changes of temperature or by being kept in open vessels. It is superior to an ointment in being perfectly clean, not soiling the under-clothing and not becoming rancid, and in being readily removed from the skin by warm or cold water, leaving it soft and smooth."

* See paper by the author, "New Remedies in the Treatment of Skin Diseases," Transactions of the Medical Society of the State of Pennsylvania, vol. xiii., part 1, p. 85.

of the part. In infiltrated and dormant conditions of the integument, they soften and soothe the parts, arouse the absorbents, and assist the action of other local remedies which may be subsequently employed. Poultices relieve the pain and promote suppuration in deep inflammation of the integument, as in furuncles and carbuncles. They are also of great utility in limited cases of chronic eczema, psoriasis, sycosis, warts, corns, callosities, ulcers, and in many other affections, particularly for removing scales, crusts, and extraneous matter.

Dusting-Powders.—Dusting-powders are employed, alone or combined, to protect the skin; and, at times, to produce a soothing, stimulating, or astringent action upon the parts. The most useful are starch, wheaten and buckwheat flour, corn-starch, orris-root, arrow-root, carbonate of magnesia, carbonate of lead, the impure carbonate of zinc, carbonate of zinc, oxide of zinc, subnitrate of bismuth, lycopodium, boracic acid, salicylic acid, alum, French chalk, talc, red cinchona powder, oleate of zinc, and prepared earth. The latter two are especially valuable; the oleate of zinc being particularly effective in many inflammatory cutaneous diseases, either alone or mixed with one of the other soothing powders. Prepared earth—which has been so long and favorably employed by Dr. Addinell Hewson, of this city, in the treatment of old ulcers, epithelioma, small-pox, and other diseases of the skin—has a beneficial effect, not only in relieving but often in absolutely curing the eruption to which it has been applied. Dusting-powders should be carefully prepared before use. They must be thoroughly ground, and afterward sifted through fine bolting-cloth. It is important that they should be smooth and free from grit.

Dusting-powders, by protecting the skin from the air and all irritating substances which may come in contact with it, and by absorbing the exudation, are of great value in certain stages of hyperæmias, eczema, herpes, herpes zoster, pemphigus, and the various disorders of secretion.

Lotions.—Lotions are liquid preparations intended for external application. They possess the advantage of being better adapted for use upon diseases involving a large surface, and where other applications, as ointments, are contra-indicated. They also constitute a cleanly and an economical method of medicating the skin, particularly if the eruption is extensive.

Lotions may be prepared with water, alcohol, spirits, glycerine, oils, and other fluid substances, and may be divided into those which are sedative, astringent, and stimulating.

Sedative lotions diminish or relieve the irritability of the surface. They are employed in inflammatory diseases, as eczema, erythema, sycosis, dermatitis, and in the neurotic and parasitic affections.

Among the most valuable are lead-water and laudanum, elder-flower water, camphor-water, black- and yellow-wash, glycerine and rose-water, glycerine and lime-water, glycerole of lead, weak solutions of the alkalies, and of boracic, hydrocyanic, and carbolic acids, and thymol.

Astringent lotions contract the tissues of the parts to which they are applied, and thus lessen or arrest discharge, and moderate or control inflammation. They can be made with one of the fluids already named, and may contain tannic or gallic acid, catechu, ergot, kino, rhatany; the various acids, the preparations of lead, alum, iron, and other drugs, having a similar action.

They are used largely in certain varieties of eczema, purpura, seborrhœa oleosa, the disorders of secretion, and in many chronic forms of cutaneous diseases.

Stimulating lotions are irritant in character and arouse the torpid integument to activity. They are prepared with one or more of the following drugs in varying proportions: tar and its products, stimulating oils, alkalies, the preparations of ammonia, benzoic acid, chrysarobin, arnica, rosemary, menthol, thymol, camphor, boroglyceride, sulphur and its preparations, and similar drugs. They are most effective in chronic eczema, psoriasis, acne, rosacea, and seborrhœa.

Ointments.—Ointments may be made from various fatty substances, but lard, butter, suet, lanolin, and petroleum-jelly are usually employed. An ointment may be simple, consisting only of one of the above materials, or it may be medicated by the addition of various remedies. Simple and medicated ointments are, no doubt, among the most effective means of making an impression upon the diseased skin. In reference to the proper base to employ for ointments, I repeat what I have again and again demonstrated clinically, and which is thus briefly stated in my small book on the oleates: The fatty vehicles intended for ointment bases are a matter of choice according to the indications of the case. While, no doubt, the most elegant preparations can be made with the petroleum fats as bases, they form, in my opinion and in that of others, the least desirable substances for such use.* In my paper, read before the Medical Society of the State of Pennsylvania,† I stated that I considered the petroleum products as objectionable for such a purpose; and Dr. Robson, of England, has made a similar observation on the use of vaseline as a surgical dressing. I also consider them to possess a feebler penetrative power, if any at all, than animal fats, which have more affinity for the integument. They usually contain some irritating constituent, which lessens or destroys their emollient action, and constitutes a great source of hindrance to their use as external remedies in active inflammation.

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* See an article on the "Irritation of the Skin following the Application of Vaseline," in the London Lancet, of November 8, 1884.

† Transactions of the Medical Society of the State of Pennsylvania, vol. xiv., p. 129.

The recent investigations of Liebreich confirm the conclusions which I came to some years ago. I place them side by side, for comparison:

Liebreich's Investigations on the Action of Mineral Fats.	*My own Investigations on the Action of Mineral Fats, reported in* 1882, 1884, *and* 1885.
"Quite apart from the fact that the absorption of medicaments, when mixed with pure fat, is but imperfectly effected, fat-ointments are subjected to decomposition, which may lead to irritation of the skin. It is true that vaseline does not decompose, but it prevents the entrance of medicaments into the skin, so that even poisonous substances, when mixed with vaseline and rubbed into the skin, produce neither local nor constitutional symptoms of poisoning."[*]	"Petroleum products, vaseline, cosmoline, etc., possess feebler power to penetrate the skin, if any at all, than animal fats, which have more affinity for the integument. Their absorptive power for penetrative action into the skin is so feeble as to almost cause them to be excluded as such. Irritant ointments of veratria and other substances which I had made respectively of vaseline, cosmoline, and of simple cerate, manifested themselves in the former two preparations as almost inert; while the activity of that made with simple cerate very soon became evident. Further, the petroleum products retain some stimulating constituent left after their manufacture."

From Liebreich's experiments and conclusions, and my own, the substance to employ as a basis for ointments should possess the power of penetrating the integument and not irritating it. Lard, suet, and lanolin are all animal fats, which are therefore best adapted for this purpose. Lard is the most economical and the most commonly used; the objection against its becoming rancid quickly can be overcome by prescribing a sufficient quantity to last but a few days, and it rarely undergoes change before it is utilized; or the addition of benzoin or a small quantity of naphthol will prevent it from becoming rancid for a long time. Suet also forms a valuable ointment, and a serviceable vehicle for the application of many medicinal substances to the skin. Lanolin, or wool-fat, a new basis for ointments, recently introduced by Liebreich,[†] is one of the most desirable vehicles for limited applications. I quote from recent investigations, which I made and published in a paper on lanolin,[‡] as follows: "Lanolin possesses great absorptive action, and by its neutrality its own decomposition is out of the question, and consequently it will not irritate the skin."

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[*] "An Address on Lanolin; a New Basis for Ointments," British Medical Journal, January 16, 1886.

[†] See Liebreich's paper read before the Section of Therapeutics of the British Medical Association, August, 1886, with discussion by the author, in British Medical Journal, October 23, 1886.

[‡] The Medical and Surgical Reporter, Philadelphia, April 3, 1886.

Liebreich states it has its origin in keratinous tissue, and is manufactured chiefly from wool by "transforming the wool-fat into a milk and then subjecting it to a centrifugal action." By this process, he further adds, "a thin milk and cream are obtained, just as when milk is subjected to centrifugal action, and the cream contains lanolin in a pure condition. More than one hundred per cent. of water can be kneaded with it, the result being a yellow, very plastic ointment." It has a yellowish color and a very slight woolly smell, or an odor similar to that of new cloth, which is barely noticeable, and is not in the least unpleasant. It is neutral in reaction, and has the consistency of ordinary citrine ointment, which it very much resembles, and is soft, smooth, and slightly tenacious. On applying it to the skin with slight friction, it rapidly disappears. It is decomposed, it is claimed, with great difficulty, and it readily combines with other fats, oils, and glycerine, forming many excellent ointments and liniments.

Ointments, like lotions, may be sedative, astringent, and stimulating.

Sedative Ointments.—Simple ointment, suet, lanolin, unsalted butter, ordinary cerates, spermaceti, coca-butter, lead, zinc, and cucumber ointments, are examples of this class. They are employed for their bland action in protecting the surfaces, and in soothing and allaying irritation and inflammation in many cutaneous diseases.

Astringent Ointments.—Ointments of this class are employed for the purpose of contracting the integument to which they are applied, lessening discharge, and arresting or modifying inflammation. They are composed of lead, bismuth, tannic acid, kino, ergot, and various other astringent substances mixed with a fatty base.

Stimulating Ointments.—Ointments containing a stimulating ingredient are to be used in the conditions already alluded to in speaking of stimulating lotions. They are most essential, especially in the subacute and chronic stages of many eruptions. Tar, cade, and juniper oils, naphthol, carbolic acid, creasote, thymol, sulphur and its preparations, including ichthyol, the mercurials, camphor, the balsams, are among some of the most valuable agents which can be added alone or combined for their stimulating action upon the skin. Chrysarobin, formerly known as chrysophanic acid or Goa powder, and pyrogallic acid are decidedly good stimulating substances to mix with ointments of this class. The former, it must be remembered, dyes all it comes in contact with, and often excites violent inflammation, especially in loose cellular tissue. Great precautions must be exercised in employing it or pyrogallic acid over a large surface, as severe constitutional symptoms may follow from the application of the latter, especially after extensive use. Biesner and others have reported marked toxic action from its use.

The petroleum-fats can also be employed for stimulating purposes, providing penetrative action is not desired for any substance which may be mixed with them.

Oleates.*—The history and origin of this class of remedies, which were first pointed out by Attfield and Marshall, together with their process of manufacture, their physiological action, and their therapeutic effect, are fully considered in my little work devoted to this subject. I do not, however, and never did claim, as has been unjustly charged by some uninformed writers, that the oleates were original with me. An examination of the various papers I have written, as well as the book just referred to, will clearly show that I make no such pretensions. I do, however, claim that my physiological and therapeutic investigations are original, as set forth in the contributions referred to. The oleates, particularly those of arsenic, copper, lead, mercury, and zinc, are most valuable remedies, and the professed lack of faith in and condemnation of them by a few are due entirely to the fact that they have been used improperly and hastily, and erroneous conclusions drawn from imperfect experience with them. The following alphabetical arrangement of the oleates, with their therapeutic action, has been abstracted from my book :

Aconitine Oleate.—Aconitine oleate has a slight local action, its effect is, however, very feeble ; it can be used in mild cases of neuralgia, where a weak anæsthetic impression is desired.

Atropine Oleate.—Atropine oleate has a mild action upon the integument, the toxic effect of the drug being almost impossible, unless it be applied freely over a large surface.

Aluminium Oleate.—Aluminium oleate, melted with an equal proportion of lard and some fatty substance, represents the ointment of aluminium oleate. It is serviceable in checking the muco-purulent discharges that occur in dermatitis and in eczema. In hyperidrosis it lessens and frequently removes the excessive secretion, while in bromidrosis the fetid discharge will either be entirely overcome by its use, or very much diminished. It is beneficial as a dressing in foul ulcers, abscesses, sinuses, chilblains, and burns.

Arsenicum Oleate.—Arsenicum oleate, melted in the proportion of one part to nine parts of lard as an unguent base, or one part in four, according to the strength desired, forms the ointment of arsenic oleate.

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* Transactions of the Medical Society of the State of Pennsylvania, vol. xii., p. 707. See papers on oleates with discussion, read before the Section of Pharmacology and Therapeutics, at the Fifty-second Annual Meeting of the British Medical Association, in the British Medical Journal, October 18, 1884, pp. 749–754. "The Oleates," by J. V. Shoemaker, A. M., M. D., Philadelphia, F. A. Davis, 1885. "Elements of Pharmacy, Materia Medica, and Therapeutics," by William Whitla, M. D., Belfast, 1885, pp. 309, 310.

It is both a valuable alterative and an escharotic, but should always be used with caution. Applied to the normal skin, little or no change is produced, but when used moderately strong on abrasions, wounds, and ulcerating and granulating surfaces, it acts as an escharotic, exciting active inflammation, and destroying the tissue to some depth. In ulcerating epithelioma it is one of the very best remedies, by reason of its being better borne for a longer period in its application than any other form of arsenic. In lupus it is especially serviceable, destroying, by its constant use, cell-infiltration in a comparatively mild and painless manner. In old ulcers, especially those of a scrofulous nature, it is of great utility.

Bismuth Oleate.—The ointment of bismuth oleate, a pearl-gray, soft, bland substance, possesses an emollient and slightly astringent action, and is useful in soothing and relieving cutaneous irritation. It is a valuable remedy in all pustular eruptions. It allays and often overcomes the high inflammation in erysipelas and sunburn. In acne and rosacea it soothes the hyperæmic skin, and relieves the engorgement of the glands, frequently subduing some of the most intractable cases.

Cadmium Oleate.—The ointment of cadmium oleate has had as yet but little practical use. It is a very strong stimulant, having an almost caustic action upon the denuded integument, resembling in this respect very much the action of the ointment of nickel oleate. It has been used with some advantage in enlarged glands. It has also been serviceable at times in cases of chronic eczema, with great infiltration, and in exuberant granulations, and old ulcers.

Cocaine Oleate.—Cocaine oleate (six per cent. alkaloid) has a slight anæsthetic action upon the integument. The decided effect, however, that has been claimed by some from its application to the skin has not been observed in my experience, even after repeated experiments with it in operations on warts, corns, horns, cancer, lupus, and the removal of superfluous hairs.

Copper Oleate.—Copper oleate, melted with either four or nine parts of fat or lard, gives respectively a twenty or ten per cent. ointment. Applied to the unbroken skin, it has no visible effect on the surface, but penetrates deeply into the follicles, causing slight stimulation. If brought in contact with the broken skin it has both an astringent and stimulating effect, and an insoluble albuminate is formed which coats over the surface, thus supplying the place of the abraded skin. It condenses the tissues, constringes the blood-vessels, and thus lessens the determination of blood to the part. It acts as an irritant to any delicate surface, causing inflammation and pain. It is a most effective application to arrest bleeding, particularly in irritable sores and indolent ulcers; obstinate granulations will often yield to it. It is an excellent antiseptic, as well as an antiparasitic agent. The most successful results, however, have followed its use upon vegetable parasitic affections, both in my own experience, and in that of Sawyer, Harries,* Startin,† and Alder Smith.

In tinea versicolor, or chromophytosis, it acts in a decided manner, rapidly removing the parasite from the surface, as well as from the follicles. It is equally effective in favus, which often yields quickly to its application. In all vegetable parasitic affections to which it is applied, care should be taken to avoid the use of water to the parts, which may prevent the copper oleate from penetrating to the lowest depth of the follicle, and thus interfere with its action on the fungus.

Copper oleate, melted and spread as plaster, will relieve, and very often cure, hard and horny warts, corns, bunions, and thickened conditions of the epidermis to which it is applied. The ointment of copper oleate is a useful remedy for freckles and other yellowish-brown or blackish patches of the skin.

Iron Oleate.—Iron oleate is readily soluble in fats. It is a valuable styptic and astringent. In the inflammatory form of eczema, in which the surface has become denuded, red, raw, and bleeding, the application of a weak ointment of iron oleate, or the oleate itself used in other soothing and slightly astringent combinations, will prove of the greatest value, its styptic and astringent action having a very happy effect upon the parts. It has a marked action in pustular eczema, sycosis, furuncles, and in scrofulous ulcers and sinuses. The first and second stages of acne rosacea are promptly benefited and often entirely relieved by its application. The lesions that result from arsenical poisoning, especially the pustules and ulcers, are more benefited by this ointment than by any other remedy that I have used in such conditions.

Lead Oleate.—Lead oleate, melted with equal parts of lard or lard-oil, gives a cream-colored, semi-solid ointment of the consistence of simple cerate. It is more easily and cheaply prepared than either Goulard's cerate, or Hebra's litharge-ointment, or any of the later modifications; it is more readily absorbed, and is superior to all of them.

The ointment of lead oleate, when applied to the denuded skin, has both an astringent and sedative action, arresting morbid discharges and allaying irritation. It soothes effectually the intense irritation that is often present in papular eczema; it is equally beneficial in fissured eczema of the palmar and plantar surfaces. It is a useful remedy in hard and indurated papular acne of the face, neck, and back, and in rosacea.

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* British Medical Journal, November 28, 1885.

† See an interesting paper on "Oleate of Copper in Ringworm," by James Startin, surgeon, of England, read before the Willian Society, December, 1884.

Mercuric Oleate.—The ointment of mercuric oleate is a yellowish chemical combination having a fatty smell, and an unctuous consistence. It has a stimulating, resolvent, and alterative action on the integument, especially upon tumors, glandular enlargements, indurations, and thickening of the skin. In some old cases of eczema, in which the skin has become greatly infiltrated, the twofold action of the ointment of mercuric oleate is often attended with happy effects. It is an acceptable and, at the same time, beneficial agent in obstinate ulcers and indolent papules, tubercles, and in infiltration attendant upon abscesses, in inflammation of the hair-follicles of the beard, and scrofuloderma. It can be used with success in excess and deficiency of pigment. It is a useful remedy in both the animal and vegetable parasitic affections. In all varieties of vegetable parasites, it is not only effective on the surface, but possesses the power of penetrating into the hairs, the follicles, and sebaceous glands, and thus killing the fungus that has passed into these parts.

Mercurous Oleate.—The ointment of mercurous oleate is very much stronger in mercury than that of mercuric oleate—in the ratio of 41·6 to 26·2, or about one and a half time as strong. It has marked stimulating action bordering on congestion of the integument, and has a decided resolvent and alterative effect. It is, therefore, applicable to the same class of affections in which the ointment of mercuric oleate is used, particularly if it is desirable to make a more decided impression.

Morphine Oleate.—Morphine oleate has, like all the alkaloidal oleates, a feeble action, and only upon the part to which it is applied. It can be employed in all irritable conditions of the integument, but many other stronger sedatives are preferable.

Nickel Oleate.—Nickel oleate mixed with a fatty base, in the proportion of from one to sixty grains to the ounce, has a very decided astringent action, almost bordering upon that of a caustic on abraded surfaces. The ointment of nickel oleate of a weak strength, from five to twenty grains to the ounce of lard, acts at times very well in epithelial ulcerations. It is often useful in exuberant granulations and in old callous ulcers.

Quinine Oleate.—Quinine oleate, both from physiological experiments and from repeated clinical experience, has proved with me of little, if any, service.

Silver Oleate.—Silver oleate, applied in its natural form to the abraded skin or sores, combines with the albumen and fibrin of the parts, forming a coat and thus excluding the air. It likewise causes a powerful contraction of the blood-vessels, and condenses and superficially destroys the tissue. Silver oleate sprinkled over ulcers, bedsores, and exuberant granulations, will set up a healthier action of the surface. When previously dissolved with an equal amount of oleic acid, and then mixed with lard in the proportion of from five to sixty grains to the ounce, it forms a dark-brown, soft, and pliable ointment. The ointment of this oleate is a safe and efficacious remedy applied over the inflamed surface of erysipelas, or around the margins, to prevent the disease from spreading.

Strychnine Oleate.—Strychnine oleate can be applied to the integument in large quantities and for some time without producing any systemic action. Its local impression is weak, and it is a remedy of but little value.

Tin Oleate.—Tin oleate, mixed with lard or a fatty base, in the proportion of from ten to sixty grains of the former to one ounce of the latter, forms a grayish-brown ointment, possessing an astringent action. It renders good service in papular and fissured eczema. The ointment of tin oleate is of great utility in diseases of the nails. It assists in such cases in overcoming the brittle, split, and soft conditions that result from injury to the parts, or that follow certain affections of the skin. This ointment, especially when combined with a little carmine, forms an elegant article of toilet for the nails and surrounding parts, giving them a beautiful lustre. Agnail, or the ragged and attenuated skin at the base of the nail, that is so frequently observed from neglecting these appendages, can be relieved or checked by it.

Veratrine Oleate.—Veratrine oleate has a valuable action as a counter-irritant when used upon the integument.

Zinc Oleate.—Zinc oleate occurs as a fine, pearl-colored powder, with a soft, soapy feel, very much like powdered French chalk. It has both an astringent and stimulating action. In hyperidrosis and osmidrosis, or excessive sweating, fetid or otherwise, it is one of the very best remedies for topical use. It is especially applicable to those who suffer from an increased flow of sweat around the axillæ, genitalia, and palmar and plantar surfaces. Dr. William Murrell, in the "London Medical Record," of November 15, 1883, also calls attention to its value in local sweating. He reports that when mixed with thymol (1 in 500), and used as a dusting-powder, it forms an excellent application in many varieties of local sweating.

In acute vesicular eczema, in which the parts become covered with small vesicles, swollen, hot, inflamed or raw, weeping, and attended with intense itching, the combined protecting, astringent, and stimulating action of the zinc oleate will usually cause all the inflammatory symptoms to abate, the discharge to dry up, and the swollen skin to resume its normal condition. Dr. McCall Anderson has referred to its utility in eczema, especially of the nares, in an article published in the "Journal of Cutaneous and Venereal Diseases." The great advantage and value of the zinc oleate among the same class of cutaneous affections have been referred to by Dr. James Sawyer, in a communication to the "British Medical Journal," of February 10, 1883, and also in another to the "Birmingham Medical Review," published a year later. It forms an excellent and useful toilet powder for ladies who are troubled with shining faces or seborrhœa oleosa, dusted over the parts either alone or mixed with an equal quantity of arrow-root, bismuth subnitrate, or lead carbonate, and scented with the oil of verbena or rose. It likewise acts in an efficacious manner on an inflamed surface that is hot and tumid ; in cases of erythema about the groins and axillæ ; and is also beneficial in herpes and herpes zoster. One part of the powdered zinc oleate melted with four parts of a fatty vehicle yields the ointment which can be used in the same class of affections just enumerated, and in acne, rosacea, and in subacute and chronic forms of eczema.*

Anæsthetics.—Applications can be made to the skin for the purpose of benumbing or suspending the action of the sensory nerves, either to allay great local irritation from disease, or to avoid pain in minor operations. Rhigolene has been specially recommended by Richardson for its local anæsthetic action. In burns he relieved rapidly the pain by applying on cotton-wool a combination consisting of camphor and spermaceti, each one drachm, mixed in two ounces of rhigolene. Chloroform and ether applied to the skin act as local anæsthetics. The former can be brushed over the surface with lint, and often relieves the intolerable itching of some of the neuroses, as occur, for instance, in paræsthesia ; and it is also useful for the same effect in urticaria. Ether is better employed with a spray, and is applicable in operations on the integument. Ice applied for some time to the skin, or cold lotions, will produce an anæsthetic action similar to ether ; veratrine ointment, thirty to sixty grains to the ounce of lard, often benumbs the sensibility of the skin, and may be resorted to also in some of the neuroses.

Another valuable local anæsthetic is cocaine hydrochlorate, applied directly to the part in the form of a lotion or injected under the integument ; employed upon the unbroken skin as a lotion, it produces little or no impression, but, upon a denuded surface, in from a two to a five per cent. solution, it often has a good effect. The local anæsthetic action of this remedy as a lotion is most marked in eczema of the mucous outlets, burns, cancer, syphilis, herpes, herpes zoster, and other painful and inflammatory affections. Murrell, Ringer, and others have demonstrated its decided local anæsthetic action upon the skin when employed hypodermatically. Brock and Arkle, house physicians to Ringer and Wilson Fox, reported in the "London Lancet" most marked effects from hypodermatic injections upon themselves of from one twentieth to one half grain of hydrochlorate of cocaine, and have obtained good results from one twentieth to one tenth of a grain in cases of herpes zoster.

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* See report on "Oleate of Zinc in Eczema," by Dr. A. A.Wells, Boston, Mass., in the New England Medical Monthly, January, 1886.

Carbolic acid and creasote in weak solutions are also pronounced anæsthetics. Alcohol and menthol alone or combined, and the tincture of aconite and the ointment of aconitine, are likewise useful, but the latter should be applied with caution.

Plasters.—The use of simple or medicated plasters is a desirable means of keeping various medicinal substances in continuous contact with the skin. They are particularly adapted to chronic and localized forms of skin diseases. They fulfil the triple purpose of protection with compression and medical application at the same time. They are likewise cleanly, and can be used upon certain regions, as the lips, hands, and feet, where it is almost impossible to secure the continuous application of ointments. In fissured eczema of the lips, palms, and soles, common adhesive, opium, belladonna, lead, and salicylic-acid plasters are all useful. They often heal fissures of these parts after all other applications have completely failed. Aconite, aconite and belladonna, Peruvian balsam, bryonia, and soap plasters are serviceable in frost-bites. Mercurial and copper plasters act happily in local spots of syphilis, scrofula, keloid, warts, burns, corns, and callosities. Witch-hazel, hemlock, and ammoniac and mercurial plasters are useful in chronic eczema and psoriasis. Ergot, iron, lead, arnica, asafœtida, and phytolacca plasters are beneficial in indolent ulcers and bed-sores. Opium and arnica, opium and belladonna, and soap plasters often prove valuable in boils and carbuncles. Opium and iodine plaster frequently assists in removing deep spots of infiltration, especially in syphilitic subjects.

Electricity.—Electricity is a most useful agent in the treatment of certain affections of the skin. It may be employed centrally or directly to the affected part. There are three forms of electricity which are used—namely, static or frictional electricity, galvanism, and faradism.

Static electricity often acts promptly in limited hypertrophies, especially in warts, corns, horns, and callosities.

Galvanism has probably the widest range of usefulness, particularly in diseases depending upon a derangement of the nervous system and in atrophies. Its application, with ten to thirty cells, central and to the affected region, in paræsthesia, often affords relief in some of the most obstinate cases. Herpes, herpes zoster, prurigo, alopecia, chronic eczema and acne, and ulcers, are frequently benefited or cured by its use. Electrolysis, or decomposition of the tissues, is produced by a needle or needles, along which the galvanic current travels into the part to which it is introduced. It is sometimes of use in nævi, rosacea, hypertrophies, and for the removal of superfluous hairs. Cauterization by the galvanic current can also be performed by heating platinum wire and applying it to the part to be destroyed. It is occasionally of service for the destruction of cancer and morbid growths upon the skin. Faradism, or the application of the faradic current, is also of value in some chronic skin affections, attended with considerable infiltration, as in eczema and psoriasis.

Antiparasitics.—This class of remedies destroys both animal and vegetable parasites of the skin.

The mercurials are, no doubt, the most potent of all medicines in their effective action on all forms of parasitic life. The best preparation of mercury to employ is, perhaps, the ointment of mercuric oleate. The corrosive chloride, the mild chloride, the ammoniated, the red sulphuret, the yellow oxide, and the yellow sulphuret of mercury are also useful.

Chlorinated oil, or olive-oil saturated with chlorine, is serviceable in scabies, acting without irritating the skin. Peruvian balsam, styrax, and sulphur are valuable for scabies, and cocculus Indicus and staphisagria for pediculosis. Copper, in the form of the sulphate, or better the oleate, is a good remedy for exterminating vegetable parasites, especially ringworm, favus, and tinea versicolor. Boracic acid and alcohol also hold a high place in the treatment of the latter class of diseases. Among the many other antiparasitic remedies which may likewise be employed are sulphur, sulphite of sodium, hyposulphite of sodium, sulphuret of potassium or lime, salicylic acid, naphthol, thymol, chrysarobin, Goa powder, creasote, carbolic acid, tar, croton-oil, cantharides, and iodine.

Caustics or Escharotics.—These are agents which destroy the tissue with which they come in contact, mainly by abstracting moisture from it. The mineral acids, particularly nitric, hydrochloric, and sulphuric, are generally used, and are very certain in their action on venereal sores, warts, and indolent ulcers. The acid nitrate of mercury is especially valuable for application to all venereal growths. The painful effect of nitric acid is said to be lessened by saturating a small quantity of it with hydrochlorate of cocaine preparatory to applying it to the skin. Chromic acid is also a caustic which has a mild but useful action in growths on mucous surfaces, and is serviceable in ulcerations of the tongue, the buccal cavity, and other mucous outlets. Lactic and glacial acetic acids have recently been employed with good result in epithelioma and like morbid growths. Probably one of the most effective of all caustics used at this time is ethylate of sodium. It has a deep and penetrating action, abstracting rapidly the water from the tissues, especially if the surface to which it is applied has been denuded. It is beneficial in lupus, epithelioma, nævi, and in various ulcers. Caustic potash in the solid form, or as a solution, is endowed with powerful destructive action, and should be applied with caution. It can be used either alone or in combination with lime or other substances. The chloride of zinc and arsenic are two effective escharotics which may be employed alone or mixed with other remedies to form many of the caustic pastes. They are both very painful applied in lupus, the various forms of cancer, and in old ulcers. The great advantage of arsenic, however—which can be used either as a powder or added to some fatty base—is its property of acting upon morbid in preference to healthy tissue. It has the disadvantage of sometimes acting slowly. There are a number of agents which are to be recommended for superficial caustic effect, such as sapo viridis, the mercurials, especially the corrosive chloride, acetate and sulphate of zinc, acetic acid, collodion, iodine, and carbolic acid. The external layer of the skin, the epidermis, when necessary, may be destroyed by one or the other of the last-named remedies.

The following have also been shown to have some special local action in diseases of the skin :

Hydrastine Hydrochlorate.[*]—This salt combines well with water, alcohol, or fats, and I have experienced good results from it in hyperidrosis, seborrhœa, acne, eczema, and in ulcers. Ten to thirty grains of hydrastine hydrochlorate in five ounces of water or tincture of witch-hazel have a beneficial action on excessive secretion, especially about the axillary or inguinal regions, and on the palmar and plantar surfaces. Weak alcoholic or aqueous solutions of it also act well in seborrhœa sicca and acne. From five to thirty grains of the salt incorporated in an ounce of fatty substance is a good application in chronic eczema, and in scrofulous and varicose ulcers.

Erythroxylon Coca.[†]—The fluid extract and the extract of erythroxylon coca, I have found, after a thorough trial, will produce a sedative action upon irritable conditions of the integument. The fluid extract can be used alone or combined with oil, glycerine, or water ; one to three drachms to the ounce of either will be useful in acute eczema, dermatitis, herpes, rosacea, and urticaria. The extract is best employed mixed with some fatty substance in the proportion of one half to two or more drachms to the ounce. It is applicable to the same class of affections referred to above, and also in neuroses of the skin, particularly paræsthesia.

Naphthol.[‡]—Naphthol is probably the most effective topical remedy of all substances recently introduced. It is a deodorant, and has a stimulating, followed with some anæsthetic action upon the skin. This effect can easily be demonstrated by rubbing the sensitive ends of the fingers through a quantity of naphthol for a few moments, when a numb feeling will soon be experienced. It also possesses useful detergent and deodorant properties. Scabies, pediculosis, and all animal parasitic diseases are not only relieved by application of lotions or ointments of naphthol, but they are frequently cured. It is for these affections the most certain of all the remedies which we possess. Naphthol used in the form of a five or a twenty per cent. ointment lessens the infiltration and itching of chronic eczema. It exercises equally as good results in chronic psoriasis. It can also be employed, combined with talc, starch, or other powders, in excessive sweating or fœtid perspiration in all parts of the body with the most happy effect. Naphthol can be added to ointments in the proportion of one to ten grains to the ounce for the purpose of simply preserving them—as it will for a very long time—from decomposition. Toxic effects will not follow, as I have shown, from either the internal or external use of properly prepared naphthol.

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[*] See paper by the author on "Hydrastis and Hydrastine Hydrochlorate in Diseases of the Skin," Drugs and Medicines of North America, Cincinnati, September, 1885.

[†] The Medical Bulletin, December, 1884, Philadelphia.

[‡] See paper by the author on "Naphthol; its Medicinal Use and Value," in Journal of the American Medical Association, November 3, 1883.

Ichthyol.*—Ichthyol, which is a substance having the appearance of tar, with an odor of gas, was brought to the notice of the profession through Unna, of Hamburg. It is procured from a bituminous rock in the Tyrol, which is said to contain decomposed animal material. It contains, according to Schmidt,† carbon, 55·05; hydrogen, 6·06; sulphur, 15·27; sodium, 7·78; oxygen, 15·83; and combines well with alcohol, ether, and all fatty substances. It has a similar effect to that of both sulphur and tar, with often even a more decided and beneficial action. As Unna states, it will not produce ordinarily in chronic skin affections, in which it is a useful remedy, any irritating action. In from a five- to a thirty-per-cent. ointment it is serviceable in psoriasis, eczema, rosacea, furunculus, lichen, keloid, and ichthyosis. Sinclair reports a deep stupor following its application in an infant; this case, however, recovered.

Jequirity.‡—This vegetable bean, when properly prepared, has a powerful action upon morbid conditions of the skin. I herewith give my method: Two hundred grains of the bean are decorticated by being slightly bruised and cracked in a mortar; the red hulls are then carefully picked from the cotyledons, placed in a bottle, and covered with water. They are thus macerated for twenty-four hours, after which they are again transferred to a mortar and thoroughly triturated until they are reduced to a smooth paste, when sufficient water is added to make the whole weigh eight hundred grains. Prepared in this manner, it has the appearance of an emulsion, and can be easily applied to the diseased surface. It is painless on application, but very soon sets up irritation and severe local inflammation, and at times some systemic symptoms, as headache, pains through the body, elevated temperature, and high pulse. In from twelve to forty-eight hours the inflammatory action becomes most abundant. A cuirass-like crust soon forms, followed with a free flow of pus. In the course of five or six days the discharge lessens, the crusts may become gradually detached, or can be removed by suitable dressings, exposing a surface studded with healthy granulations which before the application may have been the seat of exuberant ones. The virtue of the remedy is in its power to destroy the latter. I have, therefore, found it to be of the utmost value in specific ulcerations, indolent, scrofulous, and epithelial ulcers, and in ulcerating lupus. In truth, it is a powerful remedy in unhealthy and granulating surfaces, on which it exercises a destructive change, and favors the development rapidly of healthy tissue. It should, owing to the erysipelatous inflammation and constitutional symptoms which it may occasion, be applied with caution in weak and irritable patients.

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* Ichthyol is also useful sometimes administered internally in chronic eczema, psoriasis, and other cutaneous diseases. The dose is from two to ten drops three times a day.

† The Therapeutic Gazette, June 15, 1886.

‡ "Jequirity; its Use in Diseases of the Skin." See Transactions of the Medical Society of the State of Pennsylvania, vol. xvi., pp. 259–267.

Gelatine.—The use of white gelatine dissolved in twice its weight of water, by means of a water-bath, and spread upon diseased parts of the skin, has been recommended by Pick, of Prague. The solution is a useful vehicle for suspending chrysarobin, mercury, naphthol, and other remedies for a more or less continued application to the skin. It is valuable in limited chronic affections, especially in psoriasis and eczema—the medicated gelatine solution forming not only a protection for, but at the same time having by the drug which is contained in it valuable action upon, the skin.

Gutta-Percha.—Auspitz recommended one part of gutta-percha with ten of chloroform as a permanent application in the same class of affections as mentioned in the preceding paragraph. The solution so prepared is known as traumaticin, and various drugs may be mixed with it and applied to the skin.

Resorcin.—This drug is frequently of utility in benefiting or leading to a cure of many diseases of the skin. It can be employed either in the form of a powder, solution, or ointment. Good effect may follow from the application of the powder to ulcers and in epithelioma. Dr. M. Ihle,[*] of Leipsic, reports that it is especially a good remedy as a disinfectant, by destroying the germs of disease. He has used it effectively in herpes tonsurans, in parasitic sycosis, and in wounds and ulcers.

He prefers to use it in the form of a paste, which I have modified, as follows:

℞ Resorcini puri	ʒ ijss (10·0).
Ungt. simplicis	ʒ xiij (50·0).
Zinci oxidat.,	
Amyli,	āā ʒ vj (āā 25·0).

M. Ft. pasta.

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[*] Monatsch. f. pr. Dermat., 12, 1886. Medical and Surgical Reporter, April 17, 1886, p. 501.

He also suggests the following, made of resorcin, and recommends it spread on a piece of flannel and used in alopecia areata and seborrhœa, attended with falling out of the hair :

℞ Resorcini puri ....gr. lxxvij—cliv (5·0–10·0).
Ol. ricini........................f ʒ xjss (45·0).
Spirit. vini.....................f ℥ iv (150·0).
Bals. Peruvian..................gr. viij (0·5). M.

Resorcin is also useful in tinea versicolor and in eczema marginatum. Pointed condylomata may be removed by a salve containing fifty to eighty per cent. of the drug, applied daily. Resorcin may be irritating to the healthy surrounding tissue, which should be protected on its application to the diseased part. When pure it is white in color ; impure, it assumes a yellow appearance and is useless for application.

Hamamelis.[*]—Witch-hazel is a valuable remedy to employ either in the form of the tincture, the fluid extract, or the extract. It can be used alone, diluted with water, or the extract can be combined with some fatty vehicle. Hamamelis has both an astringent and a sedative action on the tissues, and will often lessen inflammatory action in the part to which it is applied. It is a remedy of much value in eczema, erysipelas, acne rosacea, seborrhœa, and varicose ulcers.

Constitutional and Local Treatment.

The following mechanical remedies, the consideration of which I have extracted from one of my papers[†] treating of them, can be employed either for their systemic or local action, or both, or as an assistant to topical medication. I shall speak of these remedies under the following headings, and for a more detailed description of them will refer to my paper read before the American Medical Association, June, 1883.

Massage.—As a general remedy, massage has been long and favorably known, but has been seldom employed as a method of treating diseases of the skin. In certain morbid states of the integument, when properly used, it is attended with a most beneficial effect, and often results in restoring the surface to its natural condition. It not only acts directly on the part, but by its indirect effect, when employed over the general surface, will impart tone and vigor to the entire system. This direct as well as indirect action of massage renders it available both for its local and constitutional effect in many diseases of the skin. Massage is a most important and valuable adjuvant in promoting and increasing oxidation in psoriasis and scrofuloderma. In these and other similar pathological conditions the skin is rendered more active by its use, the effete products are removed, and the red corpuscles of the blood are increased. It is especially advantageous for its effect in neuralgia, in perverted sensibility, and trophic disturbances of the skin. In these neuroses it relieves pain by its sedative and counter-irritant effects, and has a tonic action upon the nervous system. In some of the subacute forms of eczema, in which the integument is covered with groups of papules somewhat thickened and dry, the application of massage will often arouse the activity of the absorbents, increase the circulation, lessen or arrest the itching, and restore the skin to its natural condition. It is, however, in the chronic form of eczema that massage has been, according to my experience, both effective and curative. In chronic cases of eczema, where the integument is deeply infiltrated, rough, thickened even to a leathery state, hard and dry, and upon which medication has been used without any result, the application of massage breaks up the exudation, stimulates the absorbents, removes the inflammatory products from the parts, and restores them to their natural condition. It is equally efficacious in the same disease when the integument is covered with confluent patches of papules, and more or less infiltration with dryness of the surface, and attended with an intense and persistent itching. The abnormal and pent-up products are generally speedily removed, the massage having a sedative action on the parts as well as on the entire body, a pleasant state of repose following. Massage is a useful and beneficial application in the dry form of seborrhœa and in thinning and loss of hair; the sluggish circulation being augmented, the absorbents made active, and tone and vigor being imparted to the glands and hair-follicles. It is likewise a valuable agent in indurated acne, in glandular swelling, and in excessive and deficient pigmentation of the skin; the choked-up absorbents are aroused to activity, and the parts are soon restored to their normal condition. Massage not only acts in this local manner, but it is an important remedy applied over the general surface in curing or assisting to remove many functional derangements, such as gastric and intestinal disorders, with or without constipation, which are insidious factors in many cutaneous diseases.

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[*] Hamamelis often acts with good effect given internally—in acute and subacute eczema, erysipelas, psoriasis, and varicose ulcers. See papers by the author, on "Hamamelis," read before the Section of Therapeutics, British Medical Association, Brighton, August, 1886. "Hamamelis in the Treatment of Diseases of the Skin," read before the Section of Dermatology at the meeting of the Association of German Naturalists and Physicians, held in Berlin, September, 1886. The Medical Bulletin, December, 1886.

[†] Extracted from a paper read by the author before the Section of Dermatology and Syphilis, at the meeting of the International Medical Congress at Copenhagen, Denmark, August 12, 1884.

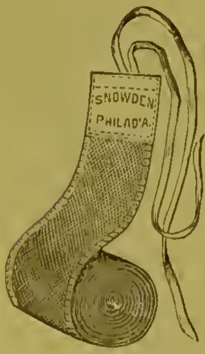

Fig. 8.—The author's woven gum bandage, used in applying compression to the extremities.

Compression.—Compression, which is very useful in the treatment of diseases of the skin, can be applied by means of any substance that will afford rest and support to the affected parts. In many affections of the skin it will either prove curative or assist medication in overcoming the morbid state of the tissue, which often resists for a long time the action of drugs. Compression is a valuable means to use in eczema, especially that form which involves the abdomen, the nates, and the genital regions. It serves in these affections to protect the parts, prevents friction with the adjoining portion of the integuments, and limits the spread of disease. It relieves the congestion in such cases, and arrests the effusion. It is also very effective in acute and subacute eczema by soothing muscular irritation, toning up the dilated capillaries, and preventing the escape of serum. Compression is an important adjuvant in the treatment of certain eruptive fevers, for œdema after erysipelas, as well as in eczema, furuncular and glandular affections, herpes, herpes zoster, and urticaria. It can be employed with muslin, gum, or woven bandages—the latter being especially serviceable—or with simple or medicated plasters.

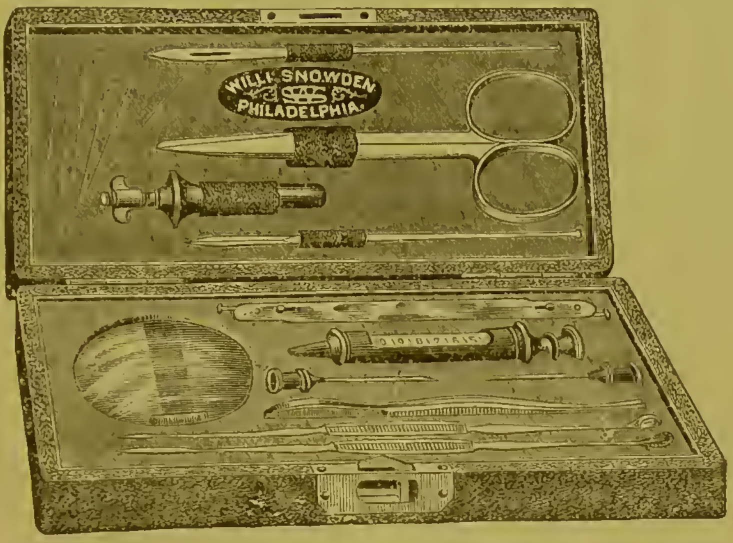

FIG. 9.—Dermatological case, used by the author, showing a lens, probes, knives, forceps, scissors, spoon, curette, hypodermic syringe and needle, holder and needles.

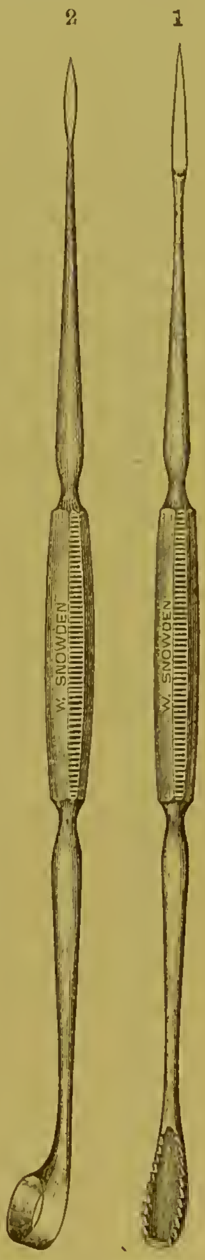

FIG. 10.—1. The dermatome or needle-knife, with spoon upon one end. 2. The dermatome or needle-knife with curette upon the extremity.

Blood-letting.—The abstraction of blood is beneficial in diseases of the skin, both for its general and local effect. It is a powerful antiphlogistic remedy, and acts in a speedy manner in relieving and in arresting morbid changes of the skin. Blood-letting is not only valuable as an adjuvant in treating certain obstinate cutaneous diseases, but it is also useful in chronic affections, after medication has been exhausted without having any effect upon the parts. Blood may be abstracted either topically, as from the capillaries of the integument, or generally from a vein or artery. Local depletion is a common and useful form of abstracting blood for the treatment of diseases of the skin, general blood-letting only being used in a very few instances. Topical blood-letting may be performed by puncturing, scarification, or leeching.

Puncturing.—The integument can be depleted either by a bistoury, a tenotome, or a short pointed needle; the one which I use in my practice I have termed the "dermatome." (See Fig. 10.) Puncturing the skin relieves the congestion and stagnation of the blood in the vessels, by equalizing the circulation, stimulating the action of the absorbents, and thus removing all deposits from the tissue. It is decidedly effective in chronic eczema, acne, scrofuloderma, carbuncles, erysipelas, excess of pigment, and in the neuroses.

Scarification.—Scarification, although not as frequently employed as puncturing in the treatment of diseases of the skin, is nevertheless an important means to use over an inflamed surface, the relief brought to the parts from dividing the engorged blood-vessels being often most decided.

Leeching.—Leeching, while inferior to puncturing and scarification for the abstraction of blood, can be resorted to in nervous persons, who fear the use of the knife or the needle.

Venesection.—Venesection will bring a decided relief in certain cutaneous eruptions, especially in strong, robust subjects bearing every evidence of a plethoric state of the system. I have employed it with success in general eczema and psoriasis.

Incisions.—Incisions are made upon the integument for the purpose of exposing, dividing, or removing the parts. They are valuable in sebaceous cysts, lymphatic enlargements, in local inflammatory patches, to relieve the tension of the integument, to divide sensitive nerves, and to give a free exit to pent-up inflammatory products. Incisions are employed with advantage in sycosis, rosacea, erysipelas, boils, and carbuncles.

Excision.—Excision, or the removal of a part, can be accomplished by either incision with the knife, by ligature, or by crushing benign and malignant tumors of the skin as well as warts. It is also useful for the removal of horns and moles.

Enucleation.—Enucleation is employed to rapidly peel out diseased structures, especially after the skin and capsules have been divided over morbid growths.

Scooping.—Scooping is a form of enucleation. It is usually performed with a smooth, sharp spoon, and is an efficient method for removing broken-down products and pent-up secretions, especially in cutaneous abscesses, sinuses, and strumous glands.

Scraping.—Scraping is but a modification of scooping, and can be performed with almost any rough substance. The curette is, however, the instrument generally used. Morbid products can be removed by scraping, as in lupus, cancers, etc., thus facilitating the application or assisting the action of local remedies.

Cauterization.—Cauterization can be performed by the use of a metallic substance heated to a high degree of temperature, or through the action of the solar rays and a lens, or by the galvano-cautery, as well as by any of the various caustic medicinal agents. The mechanical cautery, as usually employed, consists of variously shaped pieces of iron, needles, pins, or any metallic substance heated to either a white or dull-red heat and applied to the affected integument. The success of the actual cautery in morbid growths of the skin, especially in lupus and cancerous affections, is already well known to every practitioner, and simply needs to be mentioned in referring to the great value of this useful mechanical agent.

The mechanical remedies that I have thus briefly enumerated can be used alone or combined. They will be found to be invaluable adjuvants, and often powerful agents in arresting and removing some of the most obstinate diseases of the skin after medicines have entirely failed.

PROGNOSIS.

The prognosis of cutaneous diseases depends upon the nature and intensity of the causative morbid processes. It is also influenced by the extent of surface involved, and the length of time that may have elapsed between the appearance of the lesions and the institution of a plan of treatment. Age, sex, occupation, habits of life, and the presence or absence of the various diatheses are also factors which must be taken into consideration. As a general rule, however, the prognosis is favorable. A large number of skin-diseases are either acute or subacute in character, and tend to a spontaneous cure; many others run a more or less chronic course, but eventually yield to judicious and persevering treatment. Some, on the other hand, are exceedingly obstinate, and are not amenable to any known method of treatment; fatal results rarely occur except in leprosy, cancer, and the acute contagious diseases.

Disorders of the sebaceous, and functional disorders of the sudoriparous secretion, are usually only temporary in character, and may be readily cured or alleviated by appropriate remedies. Changes in character of the sudoriparous secretion are more persistent and less amenable to treatment. Hyperæmia of the skin is symptomatic of congestion of the vessels of the papillary layer, and is usually of brief duration.

The acute contagious inflammatory diseases vary in severity. Some invariably pursue a benign course, or are only occasionally fatal, while others are noted for their malignancy. The non-contagious inflammatory diseases also vary in course and duration. Many of them terminate in a few days in complete recovery. Occasionally death may ensue from the violence of the inflammatory action, or the accompanying constitutional debility, as in some cases of pemphigus and anthrax. Other diseases of this group, as prurigo and pityriasis rubra, are essentially chronic in character, and may remain for years without any apparent change.

Cutaneous hæmorrhages are generally small in amount, and of trivial importance. Hypertrophies are usually benign in character and slow in development; they are difficult to remove, and manifest a tendency to recur. Atrophies of the skin or its appendages are generally permanent.

The prognosis of neoplastic diseases varies with the benignity or malignity of the process concerned in the deposition of new material in the skin. Some, as fibrous molluscum and the different forms of nævi, are harmless in character; others, as lupus and scrofuloderma, tend to ulceration and destruction of the adjacent tissues; while leprosy, carcinoma, and sarcoma generally terminate fatally.

The neuroses are extremely variable in duration and severity. Sometimes they disappear as if by magic, after the employment of one or two simple remedies, while at other times they resist all treatment.

The parasitic affections are all curable.

PART II.

CLASSIFICATION.

THE purpose of the following classification is to arrange the different varieties of skin-diseases so that they can be readily referred to and studied in a simple and practical manner. Numerous systems have been proposed, all of which, however, are so complex as to be of little or no utility. Hebra's classification, modified, made upon an anatomical and pathological basis, is adopted in this work in order to prevent any confusion, as it is the most commonly accepted system now in vogue.

CLASS I. *Disorders of Secretion and Excretion* (*Anomaliæ Secretionis et Excretionis*).—Seborrhœa, comedo, milium, sebaceous cyst, hyperidrosis, anidrosis, bromidrosis, chromodrosis, sudamina.

CLASS II. *Hyperæmias* (*Hyperæmiæ*). — Erythema simplex, erythema intertrigo.

CLASS III. *Hæmorrhages* (*Hæmorrhagiæ*).—Purpura, hæmophilia, hæmatidrosis.

CLASS IV. *Exudations* (*Exudationes*).—Rubeola, rötheln, scarlatina, variola, varicella, vaccinia, typhoid-fever rash, typhus-fever rash, cerebro-spinal fever rash, diphtheritic spots, erysipelas, chancroid, syphilis, erythema multiforme, erythema nodosum, urticaria, lichen planus, lichen scrofulosum, prurigo, herpes, miliaria, pemphigus, hydroa, pompholix, acne, rosacea, sycosis, impetigo, impetigo contagiosum, ecthyma, pityriasis rubra, furunculus, carbunculus, anthrax, equina, abscesses, ulcus, eczema, dermatitis, combustio, congelatio.

CLASS V. *Hypertrophies* (*Hypertrophiæ*). — Lentigo, chloasma, nævus pigmentosus, callositas, clavus, cornu cutaneum, keratosis pilaris, psoriasis, lichen rubra, verruca, ichthyosis, scleroderma, sclerosis, morphœa, elephantiasis, dermatolysis, hirsuties, onchogryphosis.

CLASS VI. *Atrophies* (*Atrophiæ*).—Albinismus, vitiligo, canities, atrophia cutis, atrophia senilis, striæ et maculæ atrophiæ, alopecia, alopecia circumscripta, atrophia pilorum propria, onychatrophia.

CLASS VII. *Tumors* (*Neoplasmata*).—Rhinoscleroma, lupus erythematosus, lupus vulgaris, scrofuloderma, molluscum epitheliale, lepra, epithelioma, sarcoma cutis, carcinoma cutis, keloid, molluscum fibrosum, xanthoma, lipoma, angioma, lymphangioma, neuroma, myoma.

CLASS VIII. *Neuroses* (*Neuroses*). — Hyperæsthesia, anæsthesia, dermatalgia, paræsthesia.

CLASS IX. *Parasites* (*Parasitæ*).—*Animal:* scabies, pediculosis, cimex lectularius. *Vegetable:* tinea versicolor, tinea favosa, tinea tricophytina.

CLASS I.

DISORDERS OF SECRETION AND EXCRETION.

(*Anomaliæ Secretionis et Excretionis.*)

SEBORRHŒA.

SYNONYMS. — Steatorrhœa — Pityriasis — Acne sebacea — Seborrhagia — Cutis unctuosa— Tinea furfuracea—Ichthyosis sebacea—Schmeerfluss—Dandruff.

SEBORRHŒA is a functional disease of the sebaceous glands, characterized by an excessive and altered condition of the sebaceous secretion, forming an oily coating, crusts, or scales on the skin.

Symptoms.—Seborrhœa may occur upon any part of the body, but is usually limited to certain localities. The favorite seats are the scalp, face, back, chest, umbilicus, and the genital regions. It may in rare cases as a disease involve the entire body, as in the instance recorded by Biett. The vernix caseosa of new-born children, as well as that which affects certain races, particularly the negro, are illustrations of general seborrhœa, occurring, however, as a physiological and not as a diseased process. As a disease, its course will be found to vary according to the region affected and the state of the patient's health. It is usually more marked on the scalp, and less so on other portions of the body. It is especially liable to occur in those who are out of health, particularly the anæmic and chlorotic, and tends to lessen or disappear as the system returns to its normal condition. It may be so trifling as to require little or no treatment, often vanishing with the removal of the cause; again, it may be extremely severe, often lasting months or years, and even with the most careful attention being subject to frequent relapses. In some instances it may obstinately persist throughout life, notwithstanding careful treatment. The seasons may have an influence, it often disappearing in summer and returning in winter. The condition of the integument affected will also vary according to tho extent of the disease and the state of the poured-out secretion. It is mostly of a pale tint, and either dry or greasy. At intervals it may be more or less inflamed. Subjective sensations of either itching or burning, or both, may be present, or sometimes absent. The disease is encountered in two forms, according to the secretion discharged, whether oily, or firm and dry, and are known respectively as seborrhœa oleosa and seborrhœa sicca. They occur occasionally together, either upon the same or different regions of the body, but usually receive the subjoined separate consideration.

Seborrhœa Sicca.—This is the most common variety of the disease. It is characterized by the formation of dry, yet somewhat greasy, dirty-white or yellowish scales or crusts. As it occurs both upon the hairy and non-hairy parts, it will be described under the following local forms:

SEBORRHŒA CAPITIS is a local form of seborrhœa. It may appear in children as a continuation of the vernix caseosa, and persist for some time. It is met with on the vertex, the anterior fontanels, and occasionally over all the scalp, in the form of thin or thick, dry, friable, or fatty scales, crusts, or scabs, which are firmly adherent to the surface. The color will vary from a light yellow to a brown or black, the tint depending upon the dirt coming in contact with and the care the parts receive. The skin beneath may be normal, slightly macerated, or sometimes complicated with eczema; the hardened, adherent material exciting inflammation of the skin. After a time the disease generally subsides, the scales and crusts disappearing with the growth of the hair. In adults the disease manifests itself by the formation of thin or thick, gray or yellowish, dry or greasy scales. They are either loosely situated or adherent to the scalp; in the latter event the thick, fatty masses may bind the hair in close contact with the surface. As a rule, the disease invades the scalp uniformly; occasionally, however, it appears as one or several patches. The scaling will vary—scarcely visible in some, and so great in others as to hang loosely upon the hair-brush and drop off on the clothing, causing considerable annoyance. This abnormal condition of the hair-follicles and the coating upon the scalp may interfere with the growth of the hair. It—the hair—may become dry and dull in appearance, the lustre disappearing, and slowly or rapidly thinning, which may, perhaps, lead to permanent depillation. In other cases the morbid action may continue, often becoming severe without any structural alteration of the follicles or loss of hair. On the removal of the scales in this affection, the skin beneath may be normal or of a pale, dull-white tint, or somewhat hyperæmic. Itching or a burning sensation is liable to occur, which, from the scratching or rubbing, causes slight or severe excoriations. The disease is chronic in its course, often continuing for years or a lifetime, especially upon its favorite seat, the crown of the head, probably producing premature baldness. Seborrhœa occurring upon other hairy parts of the body, as the eyebrows, mustache, beard, and pubic region, follows a similar course to that of the scalp.

SEBORRHŒA FACIEI.—This phase appears chiefly about puberty, or between that period and thirty. It is more frequently observed in females than in males, and is met with particularly upon the forehead, cheeks, and nose. It is apt to occur as the oily variety, which will be referred to under seborrhœa oleosa. In the dry form it appears as thin or thick, yellowish, greenish, brownish, or blackish scales or crusts, well adherent to the skin, forming sometimes a mask, and occasioning much deformity. Extraneous substances frequently become entangled in the scales. If raised from the surface, they will be seen to reach into the follicles. On their removal the skin beneath will be found to be normal or reddened, but the scales quickly reform. Itching and burning sensations may or may not be present. Acne, comedones, and eczema often appear at the same time. The disease, also, is a sequence of variola and syphilis.

SEBORRHŒA CORPORIS.—Seborrhœa of the body calls for special consideration, as it has an appearance much different from that observed on other parts. It generally appears on the back, between the scapulæ, the clavicular and sternal regions, and about the umbilicus, in patches of varying size and shape. One or more of these regions may be attacked at the same time. These patches are either large or small, round or irregular, or sharply or illy defined. They may appear isolated, and remain so, or, what is more common, tend to coalesce, developing larger ones, invading the upper part of the back about the shoulders. In color they are pale-reddish, and partially or generally covered with yellowish or greenish scales. The scaling is usually scanty, and can be entirely removed, particularly from the friction of the clothing. The scales are also loose, or partially detached. The follicles of the parts are, in addition, patulous, and there may be acne papules and pustules about the margin of the patches. They will very often, particularly if the patches assume a circular arrangement with a clear centre, look very much like ringworm. Those on the chest usually incline to be circular in form, and to be covered with slightly shrivelled, yellowish or grayish, greasy or dry scales. There is generally only a single one, but several may exist, which sometimes continue or coalesce into one. The disease in this situation very often has the appearance also of ringworm, and not infrequently of a syphilitic patch. In seborrhœa of the umbilicus the collected sebaceous material rapidly decomposes, developing an offensive odor and an irritation, with often an inflammation of the parts. Itching, and occasionally a burning sensation, are generally present in seborrhœa of the body. The course of the disease is essentially chronic, and it is liable to frequent relapses.

SEBORRHŒA GENITALIUM.—The genital organs in both sexes are abundantly supplied with sebaceous glands, and owing to a too free use of water and soap, or a neglect of cleanliness, or from abuse of the parts, not infrequently become affected with seborrhœa. It may be so slight as not to be considered a diseased state, or so severe as to give rise to marked inflammation of the skin. In males it affects the glans penis and sulcus. A white, greasy matter, the secretion of Tyson's glands, caused by the heat and moisture present, rapidly decomposes, producing a fœtid odor, and more or less inflammation. A discharge from the inflamed parts very often follows, which closely resembles and may be mistaken for gonorrhœa. In females the sebaceous material collects between the labia and nymphæ, and about the clitoris, occasioning at times an inflammation with a similar discharge to that just described. Seborrhœa of this region is liable to occur both in women and young girls.

SEBORRHŒA OLEOSA.—This form, which is not as frequently encountered as the other, appears as a fatty coating both on the hairy and non-hairy portions of the skin. It is, however, more common on the latter parts. The skin has a greasy appearance and impression to the touch, especially on bald heads. It may assume in color a dirty, unctuous look, owing to the dust which readily adheres to the surface. The secretion may be discharged in a sufficient quantity to collect in minute drops, which have a yellow color; or the oily fluid can be easily detected when a piece of very thin paper or muslin is applied to the skin. There are present sometimes crusts from the concretion of the poured-out secretion. The integument may have in addition a pale or reddened appearance, and patulous or plugged-up follicles, and give to the touch a cold sensation. The usual seat of the disease is the face, especially the nose, forehead, and cheeks, but it may appear upon other portions of the body. Its course of development may be slow or rapid. It may be so slight as to neither cause any annoyance nor attract any attention. On the other hand, it may be so severe as to produce an itching or burning sensation, and by its disfigurement give rise to much annoyance, and in some instances to very great distress.

Diagnosis.—Seborrhœa may resemble and be mistaken for eczema, psoriasis, lupus erythematosus, epithelioma, syphilis, ringworm, and ichthyosis. On the scalp it is liable to be confounded with eczema. The latter affection, if present, ordinarily has a history of discharge; the itching is constant and severe. Seborrhœa, on the other hand, is a dry disease, and the itching is often intermittent and is rarely intense. Eczema inclines to occur in patches, and is apt to spread to the adjoining portions of the integument. Seborrhœa, on the contrary, as a rule, appears uniformly over the scalp and is likely to be confined only to it. In eczema the scales are commonly scanty, dry—being made up chiefly of inflammatory products; in seborrhœa they are more numerous, greasy, and are composed of sebaceous material. In eczema the skin is also red and inflamed, while in seborrhœa it is pale. Seborrhœa of the face occasionally resembles erythematous eczema, but the history of the disease, together with the presence of the greasy crusts, and often patulous follicles beneath, are sufficient for diagnosis.

Seborrhœa and eczema, while differing in many respects as pointed out, may coexist upon the same subject. The one affection may bring into existence the other, as in eczema of infants, which is liable to excite seborrhœa. In a similar way seborrhœa of the face, of the sternal and genital regions, may develop at the same time eczema of these parts.

Seborrhœa is even more likely to resemble psoriasis, either of the scalp or body. If seborrhœa exists, it generally covers the entire scalp; if psoriasis, the disease appears in patches circumscribed with intervening healthy skin, and similar lesions are present on other parts of the body, particularly on the extensor surfaces.

The scales in seborrhœa are small, thin, and of a gray or yellow color, while in psoriasis they are larger, thicker, and white in tint. The skin of the scalp in seborrhœa is pale or deadened in color, and seldom exhibits any inflammatory symptoms; in psoriasis, upon the removal of the scales, it is at all times red and infiltrated. Seborrhœa may also have the appearance of, and be mistaken for, lupus erythematosus. The latter, it is known, begins sometimes as a congestive seborrhœa, but, once formed, its symptoms are characteristic. Again, seborrhœa, virtually, is neither sharply limited nor inflamed, as is always the case in lupus. In seborrhœa the skin may be reddened and covered with many easily detached, greasy scales; in lupus it is more of a dark, reddened tint, and the scales, which are fewer, are also tenacious and dry. The disease is also distinguished from lupus by not being followed by the characteristic cicatricial tissue of the latter disease. Seborrhœa and epithelioma, in their early stage on the face of old people, may present such marked similarity as to be easily confounded. The attendant atrophy, and the slight degeneration around and beneath the patch, are usually distinctive symptoms of epithelioma; but, if the peculiar small nodular lesions of the latter occur, the diagnosis can be readily established. Seborrhœa may resemble, both on the scalp and the body, especially on the face and chest, some forms of syphilis. The history of the case, the involvement of the glands, the dark-red or ham color of the skin beneath and around the crusts, and the detection of other lesions in the form of mucous patches or old scars, would point to conclusive evidence of syphilis. It should be remembered, in this connection, that both diseases may likewise coexist—syphilis frequently exciting seborrhœa. Seborrhœa of the body may look very similar, especially on the chest, to ringworm. In ringworm, however, there is the history of contagion, its rapid course, the circular arrangement of the patches, the tendency to heal in the centre with the inflammatory periphery, and the evidence of a vegetable parasite by microscopical examination, which should serve to prevent any error. Seborrhœa can hardly be confounded with ichthyosis, the latter being a congenital, general, permanent disease, while the former is an acquired, local, and curable affection. In seborrhœa the skin, upon the removal of the scales, presents a soft and natural condition, but in ichthyosis it is dry, harsh, and rough.

Pathology.—Seborrhœa, which is a functional affection, consists in an increased and generally changed secretion of the sebaceous glands. There may also be an escape from the glands and their follicles of a certain quantity of epithelial scales. The secretion thus poured out may remain oily or solidify, and occasion the oily or dry form of the disease. If the disorder be permitted to become chronic, it may eventually terminate in atrophy of the glands and their ducts, giving rise to loss of hair, which may be permanent. If the discharged secretion is placed beneath the microscope, it will be seen to be made up of an amorphous, fatty, somewhat granular material, with more or less epithelial cells.

Etiology.—A normal quantity of the sebaceous material in the skin assists in keeping it in a healthy condition. If the secretion at other than the physiological period in the new-born becomes excessive or unnatural, a diseased state has taken place. The causes which produce this change, while many, are mostly due to some general disturbance of the system. It may occur as the result of tuberculosis, cancer, the exanthematous and other fevers, an anæmic or chlorotic state, or any cutaneous disease which may impair the general health; or it may depend upon alimentary, uterine, or ovarian disorders. Again, it may be brought about by any local means which will give rise to an irritation or congestion of the skin in persons who are otherwise healthy. Exposure to cold and heat sometimes occasions the disease, particularly on the face. Uncleanliness of the scalp, the use of hair-powders, dyes, pomades, irritating lotions and oils, or too severe combing and brushing, or the too frequent use of water or soap, or both, are no doubt active factors in causing the affection. Occasionally it occurs in the healthy without any apparent cause, but with care may often be traced to one of those I have stated. It appears at all periods of life, but is more common at the age of puberty, and in the female than in the male. The development of one or the other variety is not dependent upon any special cause, but upon the temperament of the person in whom it occurs. For this reason, individuals with light hair and complexion are subject to the dry variety, while those with dark hair and complexion to the oily.

Treatment.—Seborrhœa generally requires both constitutional and local treatment. The laws of hygiene should be rigidly enforced. Fresh air, sunlight, exercise, and nutritious food are requisites. The administration of internal remedies is to be directed against the cause upon which the disease depends. The bitter tonics, the preparations of malt, arsenic, iron, cod-liver oil, phosphoric acid, and the phosphates are indicated in the debilitated, anæmic, and scrofulous. In derangement of the alimentary canal, the preparations of pepsin and nux vomica, with an occasional laxative or cathartic, will be found of service. In cases depending upon dyspepsia, especially the atonic form, the following combination will be valuable:

℞ Pepsini sacch........................ gr. x.
Strychninæ sulph.................. gr. $\frac{1}{80}$.
Ol. menth. pip..................... gtt. $\frac{1}{30}$.
M. Ft. chart no. j.
Sig.: Take after meals.

If constipation is present, one tenth of a grain of aloin may be advantageously added to each powder. Seborrhœa, occurring at the age of puberty in those who are otherwise healthy, is often benefited by the iodide of iron, two grains three or four times daily, or the sirup of hydriodic acid, one half a teaspoonful three times daily. It is sometimes of advantage to add from one to five drops of liquor potassii arsenitis to each dose of the latter medicine. Sulphur and its compounds, especially the sulphide of calcium, in small doses, have also been recommended.

The local treatment is of the utmost importance. It will, however, vary according to the region involved, the duration of the disease, the extent of crusting or scaling, and the irritability, if any, of the skin.

As seborrhœa of the scalp is the most common form, it will be referred to more in detail. It is not necessary to cut the hair, as it will in no way assist or facilitate the treatment. The remedies can be applied effectively whether the hair be long or short. A simple or medicated oil is, perhaps, the most advisable to employ, particularly if the hair be long. It softens and loosens the accumulated masses of sebum and scales, and removes them from the surface. The oil of ergot is the best agent to use for this purpose, as it possesses not only the power of removing the sebaceous material, but, by its astringent and slightly stimulating action, proves of benefit to the diseased follicles and glands. In ordinary cases of seborrhœa of the scalp, or other parts of the body, it generally suffices alone as a local remedy, if the surface be occasionally washed with water and soap. It may be combined with an equal quantity of the fluid oleate of mercury, oleic acid, glycerine, or a fifty-per-cent. solution of boro-glyceride, and scented with some agreeable essential oil. It will be of advantage to stimulate the parts by the addition of a small quantity of carbolic acid, balsam of Peru, or similar substances. Olive, almond, and other bland oils may also be used for removing the sebum and scales, but they do not possess the medicinal qualities of the oil of ergot. In severe cases, in which the sebaceous material is thick and caked on the scalp, it may be necessary to saturate the parts with oil in order to soften the mass. The application should be made just before retiring, and the head covered with a flannel cap and then protected with a bandage, or, even better, oiled silk. On arising, the dressing should be removed, and the scalp washed with water and soap. Soft or potash soap, or spirits of soap, is usually recommended, but I have found soda soap, particularly when medicated with chamomile and sulphur, to be sufficient. If the sebaceous material reform the application should be repeated. Lotions occasionally prove effective. They are to be preferred to oils in seborrhœa oleosa, especially of the face. One or two grains of corrosive sublimate to the ounce of rose-water is an excellent application. Naphthol, in from three to five grains to the ounce of water, is also valuable. Equal parts of glycerine and alcohol, or a fifty-per-cent. solution of boroglyceride have been found serviceable. The following formula is also recommended:

℞ Tinct. nucis vomicæ	f ℥ ss.
Chloral hydratis	℈ j.
Tinct. capsici	f ʒ ij.
Spts. rosmarini	q. s. ad ft. f ℥ iv.

M. Sig.: Apply night and morning.

Spirit of ammonia, tincture of cantharides, and other stimulating substances are useful in the form of lotions.

Ointments are sometimes beneficial, especially if bland medicaments are required. As a rule, they seldom yield good results on the scalp and hairy parts of the body; they mat the hair together, and do not always reach the diseased scalp. The ointment of mercuric oleate, well rubbed in, either alone or combined with naphthol or one of the tarry preparations, is the most effective. Those of the nitrate and the ammoniated and the red oxide of mercury are worthy of trial. The annexed formula has been prescribed with excellent results:

℞ Ol. anthemidis	gtt. x.
Quiniæ tannat	gr. xv.
Ungt. bovis	℥ j.

M. Sig.: Rub in a small quantity once or twice daily.

Zinc or lead ointments, with or without opium, may be demanded, if there is much irritation or inflammation of the skin. Powders which have a combined astringent and soothing action are serviceable in the oily form about the face and in seborrhœa of the prepuce. They can be used alone, or in connection with a lotion or ointment. Powdered zinc oleate, mixed with an equal quantity of arrow-root, starch, or bismuth subnitrate, forms an excellent application. The local treatment of seborrhœa of other parts of the body is similar to that of the scalp. The sebaceous material, if accumulated, should be removed in the manner already described, and suitable applications then be made. The selection of remedies and the frequency of their application—whether daily, a few days, or once or twice a week—will depend upon the variety of the disease and the condition of the affected surface. In cases in which soap and water increase the irritation, their use must be avoided.

Prognosis.—Seborrhœa is a chronic but generally curable disease. It may at times disappear spontaneously, or yield rapidly to treatment. Again, it may prove obstinate, requiring a prolonged course of treatment. If it involves the scalp, or other hairy parts of the body, or has continued for some time, temporary, and not infrequently permanent, loss of hair may follow. The prognosis is, however, very unfavorable in cases in which the entire surface is involved, and also in those afflicted with carcinoma and tuberculosis.

COMEDO.

Comedo is a disease of the sebaceous glands, due to retention of sebum within the follicles, and marked by the appearance of whitish, yellowish, or blackish points at their orifices.

Symptoms.—Comedones vary from a pin's point to a pin's head or larger in size. They may be elevated or non-elevated, and more or less numerous, irregularly distributed on the skin. They are situated, as a rule, about the face, neck, chest, and back. The face, especially the forehead, nose, and chin, is usually involved, being studded with black points, and often also presenting a greasy and muddy appearance. The disease is frequently accompanied by acne and seborrhœa oleosa, and inflammatory symptoms will at times result. It occurs chiefly in the young of both sexes, especially about the age of puberty. The course of the disease is very slow, disappearing, to again reappear, it may be for years, unless checked by appropriate treatment.

Diagnosis.—Comedo might possibly be mistaken for acne punctata, but inflammatory symptoms exist in the latter which are not usually present in the former disease. The diagnosis between comedo and milium is referred to under the latter affection.

Pathology.—The disease develops in the sebaceous glands and follicles, and consists in the retention of sebum and epithelial cells leading to the dilation of the openings upon the surface. The black point upon the skin is generally ascribed to dirt, but Unna states that it is produced by pigment. The formed comedones rarely excite any inflammation, and if removed and examined are found to consist of sebaceous matter, epithelial cells, free fat, occasionally one or more small hairs, dirt, and at times the *Demodex folliculorum.* The latter parasite, which is frequently present in healthy subjects, is not a causative element in producing the disease.

Etiology.—The physiological activity of the glands and the development of the hairs at the age of puberty are doubtless provocative of the disease. Chlorosis, scrofula, and menstrual disorders frequently produce it. Disorders of the gastro-intestinal canal, especially dyspepsia and constipation, very often assist in its development. According to Piffard, comedones at times have their origin in masturbation. In fact, it may, like acne, be brought about by the functional derangement of any one of the organs of the body, including the skin itself. The action of local irritants upon the skin, as in certain occupations, often gives rise to the disease. This result will frequently be seen in those working in tar, among chemicals, dyes, wool, etc.

Treatment.—Constitutional and local treatment are of advantage. Chlorotic subjects are benefited by cod-liver oil, iron, the simple bitters, with occasionally saline aperients. An appropriate diet and proper hygiene are of the greatest value in all cases. Dyspepsia, constipation, and uterine disorders should be corrected by suitable treatment. Ergot, and the tincture of the chloride of iron, or dilute phosphoric acid, alone or combined, can often be employed with good results, especially in weak and nervous patients. Local treatment is all-important for the purpose of removing the offending plugs and stimulating cutaneous activity. The comedo-plugs, if a source of annoyance, from the deformity which they occasion, can best be removed by nicking the side of the follicles and scooping out with a needle-knife, or gently pressing the contents. If an attempt is made to remove them by squeezing the comedones between the fingers, or by applying a watch-key over them, and by violent pressure force out the contents, the delicate epidermis may be lacerated, and inflammation result. The use of soap and water, followed by friction with rough towels once or twice daily, affords most excellent results; medicated soaps can also be advantageously employed, especially sulphur, chamomile, ergot, salicylic acid, and sublimate, either in the form of potash or, even better, soda soap. Soap, combined with alcohol or any one of the spirits, is likewise effective. Stimulating lotions containing corrosive sublimate, one of the tarry preparations, sulphur, borax, bicarbonate of soda, or sulphate of zinc, are well borne and yield good results. I herewith give a formula that has proved useful in my private and hospital practice, and is well worthy of trial:

℞ Thymol........................ gr. x.
Acidi borici...................... ʒ ij.
Tincturæ hamamelis Virg........ f ℥ j.
Aquæ rosæ...................... f ℥ iv.
M. Sig. : Mop well over the surface once or twice daily.

The appended is also a very good application.

℞ Sol. boro-glyceridæ (50-per-cent. solution),
Spts. vini rectif..........................āā f ℥ ij.
M. Sig.: Rub well into the part with flannel.

The various stimulating ointments, particularly those containing sulphur, borax, Peruvian balsam, tar, and the mercurials, may be used when soaps or lotions are not suitable. If the part has unfortunately been over-stimulated, and the skin assumes a rough and inflamed appearance, soothing and slightly astringent ointments or dusting-powders should be employed.

Prognosis.—Favorable results invariably follow well-directed efforts to remove the disease. Relapses may occur if the exciting cause remains, but persistent treatment will restore the skin to its normal condition.

MILIUM.

Synonyms.—Grutum—Strophulus albidus—Acne albida—Tubercula miliaria—Tubercula sebacea.

Milium consists in the development of small, round, whitish formations, located beneath and covered by the epidermis.

Symptoms.—Milia appear as small, round, flat, or acuminated bodies, usually situated on the face, particularly about the upper eyelids, cheeks, and temples. They may occur, however, on other portions of the body, especially on the penis and scrotum. They may or may not be elevated, and are hard and firm to the touch ; in size they vary from a pin's head to a small pea, but commonly they are about that of a millet-seed, from which they derive their name. They are whitish, translucent, pearl, or yellowish in color. They may appear singly or multiple, but are ordinarily observed as several — usually four to twelve—upon one of the regions named. They develop, as a rule, slowly, and, after reaching a certain size, remain for years. They occur more frequently in women than in men, particularly at and after adult age. Milia may exist alone or occasionally in connection with other eruptions, as acne, comedo, lupus, and syphilis. They give rise to no subjective symptoms, but, simply by their presence, if on the face, occasion more or less deformity.

Diagnosis.—Milia may resemble comedones, from which, however, they may be distinguished by their anatomical formation. Milium, anatomically, is a very small sebaceous tumor, covered with epidermis ; while comedo is simply a dilatation of the duct, with a retention of the secretion, and a free or open extremity. Milia usually project from the surface, and occur as the sole disease; comedones, on the other hand, have a smooth surface, with prominent black points, and generally coexist with acne or some other eruption.

Pathology.—Milium is thought by many investigators to consist in a retention of the sebaceous secretion, together with an obliteration of the aperture of the gland. An incision through one of the formations will demonstrate that it lies beneath, and is covered with the epidermis. Virchow and Rindfleisch believe that the cysts proceed from the hair-follicles. Robinson also states that he believes a milium, where superficially located and under certain circumstances, may be a case of wandering embryonic epithelium from a hair-follicle or from the rete.

Etiology.—The origin of this disease is in many cases unknown. It may arise from a constitutional derangement, or local source of irritation.

Treatment.—The free use of soap and water, especially the potash soap, will often cause milia to disappear. But the best and most radical treatment is by means of the knife. A small incision in conjunction with an application of Monsel's solution or the tincture of iodine will insure their destruction. They may also be removed by electrolysis.

SEBACEOUS CYST.

SYNONYMS.—Steatoma—Atheroma—Sebaceous tumor—Follicular tumor—Encysted tumor—Wen.

Sebaceous cyst is a prominent, roundish or semiglobular tumor, situated in the skin or subcutaneous tissue.

Symptoms.—Sebaceous cysts or wens consist of an accumulation of the secretion in the sebaceous glands. They are met with chiefly upon the scalp, forehead, eyelid, neck, shoulder, back, buttocks, and scrotum. They may occur singly, as is usually the case, or multiple. They vary in size from a pea to a small orange, and are semiglobular, rounded, or flattened in shape. They may be firm, soft, or fluctuating in consistency, according to the condition of the retained material. They are usually freely movable; but this depends upon their age, size, and the condition of the tissue in which they are seated. The overlying skin is either normal or paler in color, from the compression of the blood-vessels. It may be devoid of hair, and, in the aged, rough or red or greasy in appearance. The orifice of the gland-duct may remain in some and be obliterated in others. They are unattended by pain, slow in their development, and often remain for years without producing annoyance. Occasionally, however, they inflame, suppurate, and ulcerate, giving rise to an offensive discharge. The periods at which they most frequently appear are childhood and middle age; instances, however, have been known where they have existed before birth. They are also said to be hereditary.

Diagnosis.—Sebaceous cysts are liable to be confounded with fatty tumors. The latter, however, seldom invade the scalp, have more of a doughy consistence, their degree of mobility is slight, and they may attain a very large size. In case of doubt as to the diagnosis, an incision should be resorted to. They may also resemble gummata and osteomata. Gummata are usually attended by other syphilitic lesions, and are both rapid and painful; but are not as freely movable as the sebaceous tumors. Osteomata are hard and immovable; sebaceous cysts are soft and movable.

Pathology.—A sebaceous tumor is a cyst of the gland, caused by retention of the secretion. It consists of a strong sac and its contents—the sac being formed by a distention of the gland, producing more or less hypertrophy of its walls. The contents are variable both in color and consistence—whitish, yellowish, or grayish, and hard and friable, or soft, cheesy, and fluid—and composed of sebum, epidermic cells, cholesterine, with occasionally a hair. The cyst may break down, and be attended with a fetid odor, or be partially or entirely filled with calcareous matter.

Treatment.—The most certain remedy is excision. The operation, however, should only be performed when the system is in good condition, or after proper preparation has been made for it. If this precaution be not taken, erysipelas may follow, with dangerous and possibly fatal results. After incision, the cyst-wall should be entirely torn or dissected out; otherwise, the growth may return. The cyst may also be destroyed by caustic applications or injections of iodine, carbolic acid, or other irritating substances.

Prognosis.—As a rule, the prognosis is favorable. Fatal results may happen in the aged and debilitated, but seldom when they have been prepared for the operation.

HYPERIDROSIS.

Synonyms.—Ephidrosis—Hydrosis—Idrosis—Sudatoria—Increased secretion of sweat.

Hyperidrosis is a functional disorder of the sweat-glands, characterized by increased sweating.

Symptoms.—Hyperidrosis may be either acute or chronic. It may be general, in which the entire body is affected, or local, and limited to certain regions. *General sweating* may occur in healthy individuals from nervous excitement, or from an increase in the surrounding temperature, especially in corpulent persons. It is often liable to appear in connection with tuberculosis, pneumonia, rheumatism, malaria, and certain nervous, febrile, and debilitating diseases. The temperature under such circumstances may rise or fall.

Local hyperidrosis may occur upon any part of the body, but the scalp, face, axillæ, genitals, and palmar and plantar surfaces are most frequently involved. It may be temporary, continuous, intermittent, or periodical. It may be symmetrical or unilateral. Many cases have been recorded in which, owing to some derangement of the nervous system, the sweating occurred upon one or opposite sides of the body. It may be slight, or it may be so excessive as to saturate the clothing and macerate the integument. In the axillary region the poured-out sweat, mingling with the sebaceous secretion, particularly in women, discolors and destroys the clothing, creating a most disagreeable and offensive odor. The same annoying, and occasionally even more vexatious, effects follow from hyperidrosis of the genital regions. In the involvement of the palms and soles the sweat may exude in drops, collect on the surface, and flow in quantity from the members. The palms when affected are bathed in a profuse perspiration, even after drying. The secretion can often be seen issuing from the ducts as a clear or a yellowish fluid. The amount varies according to the condition of the health and the state of the temperature.

The skin presents a white, wrinkled, and macerated appearance, and the parts are cold and clammy to the touch. Similar and often even more severe symptoms occur in hyperidrosis of the soles. The stockings and shoes, or boots, become saturated with the secretion, which decomposes, adding a further source of irritation to the parts. The skin becomes macerated, sodden, fissured, especially in the flexures of the toes, and strips off, exposing a delicate and tender surface beneath. A disagreeable odor develops, and the pain and suffering may be so severe as to interfere partially or entirely with walking.

Hyperidrosis may at times be attended with itching, burning, pricking, tingling, or other unpleasant sensations. It is often a most obstinate and persistent disorder, occurring in both sexes, and usually more severe in summer than in winter. It may give rise to other cutaneous affections, especially eczema.

Diagnosis.—The diagnosis is easy, but the disease may resemble seborrhœa oleosa and prickly heat. In seborrhœa oleosa the poured-out secretion is oily, and in prickly heat vesicles are formed, with attendant surrounding inflammation ; in hyperidrosis the secretion is serous, and vesicles and inflammation, as a rule, are absent.

Pathology.—In a case of phthisis, attended with hyperidrosis, Virchow observed that the glands were enlarged, with fatty degeneration of the epithelium. The sweat-glands and tissue of the part involved are not usually changed in the least.

Etiology.—Hyperidrosis may sometimes be congenital and hereditary. Functional or organic disease of any of the organs, or a derangement of the nervous system, is often the exciting cause. A nervous influence has frequently been noted to be active in occasioning it. The direct cause can not be ascertained at times, even after careful examination into the condition of the system.

Treatment.—The treatment should be appropriate to the case under consideration. If the cause of the disease can be detected, it should be removed or counteracted. Lung, heart, and kidney affections, or hysteria, neuralgia, anæmia, chlorosis, scrofula, or syphilis, may underlie hyperidrosis, and they should receive the treatment necessary for each individual case. There are a number of remedies which may be employed in arresting excessive perspiration, but their effect, as a rule, is only temporary. Geber refers to the value of white agaric (0·1 to 0·5 gm.), the extract of aconite (0·03 to 0·06 gm.), and to salvia leaves, flor sambuc., the aqueous extract of strychnine, carbolic and salicylic acids. Jaborandi has been of service, as well as pilocarpin and atropia. The latter is probably the most effective and certain general remedy; it may be given hypodermatically, in from one eightieth to one one hundred and sixtieth of a grain. Ergot, in the form of the fluid extract, and faradization have also been followed by good results.

Local treatment is essential in curing or relieving the disease. The constant use of water in the form of baths, or applied directly to the part, simple or medicated, is not usually attended with the best results. In its mildest forms the occasional use of water, as hot as the surface can bear, with naphthol, corrosive sublimate, sulphur, or tar soap, is often productive of good. In light and severe cases dusting-powders are well borne, either alone or after the application of water. Zinc oleate, salicylic acid, and naphthol are perhaps the most useful of all powders. The following I have found of service:

℞ Pulv. zinci oleatis.................... ʒ iij.
Pulv. amylii........................ ℥ ss. M.

℞ Acidi salicylici,
Bismuth subnit.....................āā ℥ ss. M.

℞ Naphtholi .... ℈ j.
Acidi borici............... .... ℥ ss. M.

As soon as the powders become moist on the surface they should be removed with sweet-oil and reapplied. Care should always be exercised to avoid having the affected part too warmly covered or too well protected. This condition is frequently observed among women who wear shields in the axillæ to protect their clothing, and in men who apply varicocele-bags and other means of protection around the genital organs. These articles may often cause the secretions to be retained, and produce an inflammation of the skin.

Lotions are frequently effectual, either alone or in connection with other medicaments. They may be aqueous or spirituous, and contain tannic acid, sulphate of zinc, acetate of lead, boracic and salicylic acids, corrosive sublimate, or other drugs. Ten grains of corrosive sublimate, in four ounces of Cologne-water or tincture of witch-hazel, forms an elegant and useful application. Alum, one or two drachms to the pint of water or alcohol, may also be employed. The tincture of belladonna is said to be a valuable remedy.

In obstinate cases, involving the feet, Hebra obtained good effect from the application of diachylon-ointment. The ointment is spread upon pieces of linen sufficient to cover each foot, likewise on separate pieces to be placed between the toes. The entire foot is then covered with linen, bandaged, and the stocking and shoe put on. The same procedure is repeated each day for one or two weeks. The upper layer of the skin in the course of a few days after treatment begins to be cast off ; after this is complete the feet are washed and powdered—the latter being continued for some weeks after the ointment. Salicylic and boracic acids, lead oleate, and naphthol are likewise valuable ointments. Lint and absorbent cotton, with or without medication, are also useful. Robinson indorses the use of borated absorbent cotton without other adjuncts.

Prognosis.—Hyperidrosis in many cases can only be alleviated. The disease is obstinate and unyielding to the best-known methods of treatment. If the cause can be discovered and removed, the prognosis is favorable. A cure, and very often relief, however, is not obtained, owing to the patient neglecting to thoroughly carry out the treatment advised.

ANIDROSIS.

SYNONYMS.—Hypohidrosis—A decreased or complete cessation of the secretion of sweat.

Anidrosis is a functional disorder of the sweat-glands, characterized by a decrease or complete cessation of the secretion of sweat.

Symptoms.—Anidrosis may be idiopathic or symptomatic, general or local. It may be congenital or hereditary, there being a diminution or an absence of sweat, under circumstances which generally make the sudoral secretion most active. Examples of general idiopathic anidrosis are to be observed in ichthyosis. The skin in these cases is harsh and dry, and the palmar and plantar surfaces are thickened, fissured, and at times painful.

Symptomatic Anidrosis, which is far more common, may be either general or local, and may occur from impairment of the nervous system, or in the course of other cutaneous affections, as eczema, psoriasis, lichen rubra, and leprosy. It may be temporary, as in fevers and neuralgias, or it may be permanent, as follows sometimes in diabetes, carcinoma, and tuberculosis. The skin, whether it be general or local, temporary or permanent, is dry, rough, and often the seat of itching, burning, and other distressing sensations. Occasionally, a sudden arrest of the functional activity of the sweat-glands may give rise to more or less unpleasant constitutional symptoms.

Treatment.—Exercise, especially in the open air, or the use of massage, is to be advised. The general health, or the disease producing the disorder, should also be corrected. Baths—the cold, hot, steam, hot-air, or Turkish or Russian—with friction of the skin, are to be commended. Diaphoretics are advisable. The most valuable are the fluid extract of jaborandi, in the dose of from a few drops to one or two drachms, or its alkaloid, hydrochlorate of pilocarpin, given in from one tenth to one half grain. Free diaphoresis will follow in a short time, and continue for several hours. Emollient ointments or oils will often be required when the skin is dry and fissured. Lanolin, alone or combined with a few drops of oil of eucalyptus, forms an excellent application.

BROMIDROSIS.

Synonyms.—Osmidrosis—Stinking sweat—Odorous sweat.

Bromidrosis is a functional disorder of the sweat-glands, characterized by an offensive or disagreeable odor from the skin, with more or less sweating.

Symptoms.—Bromidrosis may occur either as a general or as a local disorder. If general, it may be a physiological condition, as is the case in the negro, and occasionally in persons of other races. The exhalation may have a characteristic odor, as of decayed cheese, putrid flesh, urine, or rancid, goaty, or sour, or like that of onions, asafœtida, musk, sulphur, or it may have a peculiar sweet smell, like violets or pineapples. A distinctive scent occurs in certain diseases, as in the fevers, in which it is ammoniacal; in scurvy, putrid; in syphilis, sweet; in rheumatism, acid; in jaundice and peritonitis, musky. In nervous affections, also, peculiar odors have been noted to occur—Hamilton recording, for instance, that of violets to follow in a lady of hysterical disposition. The ingestion of certain articles of food and drugs may give rise to others. The local forms of bromidrosis are, however, the most common, especially upon those portions of the body abundantly supplied with sweat-glands—as the axillæ, groin, genital regions, and feet. The odor may vary, being slight and hardly apparent, or so penetrating and offensive as to interfere with the person's intercourse with his fellow-man. It often causes individuals to be shunned by those they come in contact with in their occupation, as well as in social life. The disorder is more severe in the summer than in the winter months. It may occur at all ages, but is more frequently encountered in middle life. The feet, which are the most frequently affected, exhale a most offensive odor. The disorder is mostly symmetrical. The skin, from the irritating action of the decomposed secretion, which is retained in the stockings and shoes, becomes red, excoriated, and tender, or whitish and sodden, and is sometimes so painful as to interfere with walking.

Bromidrosiphobia* is a term referred to by Piffard to denote that the odor complained of is subjective and referable to perverted sensitiveness of the olfactory organs. Two cases of this disease are reported by him.

Etiology.—The disorder is frequently connected with some nervous derangement. At times it will be found impossible to trace it to any assignable cause.

Treatment.—Bromidrosis, if physiological, may be relieved by frequent ablutions with water and soap, the naphthol and carbolic-acid soaps being serviceable. The under-garments should be changed often. When it is dependent upon disease, particularly of the nervous system, it should be counteracted by appropriate treatment. The local forms are treated principally in a similar manner to hyperidrosis. There are, however, certain remedies which are particularly efficacious, and to which especial attention is called. Naphthol, boracic and salicylic acids, are valuable agents, used in the form of lotions or ointments. From ten to thirty grains of either, in an ounce of water, alcohol, lard, lanolin, or suet, form suitable applications. Thin recommends, in bromidrosis of the soles, the wearing of cork-soles within the shoes; the cork to be soaked, as well as the stockings, in a solution of boracic acid, and to be thoroughly dried before wearing. A fifty-per-cent. solution of boro-glyceride, used alone or rubbed up with carbonate of lead or zinc, often acts well. The permanganate of potassium or chloral hydrate, in from five to thirty grains to the ounce of water, alcohol, or tincture of witch-hazel, may have a beneficial effect. Solutions of oxalic acid, ten to twenty grains to the ounce of water, or chloride of zinc, in from three to ten grains to the ounce, may also be recommended. The various dusting-powders, especially the oleate of zinc, salicylic acid, and powdered red cinchona, singly or combined, either with or without lotions, often afford much relief.

CHROMIDROSIS.

SYNONYM.—Colored sweat.

Chromidrosis is a functional disorder of the sweat-glands, characterized by a coloration of the sweat-secretion.

Symptoms.—Chromidrosis is a very rare disorder, and consists in the commingling of sweat with pigment-matter. The sweat is increased in quantity, and may be of a yellowish, greenish, reddish, bluish, brownish, or blackish color. The secretion is not constant, but irregular in its periods of development. It comes suddenly, to disappear in a brief interval, and again reappear. It may occur upon various parts of the body, but is most frequently observed on the face, chest, abdomen, arms, hands, and feet. It is met with more often in females, especially the unmarried and in those suffering from some uterine derangement, nervous affection, or excitement or shock. The coloring-matter in the secretion is said to be due to Prussian-blue, indican, or other pigment. Simulated cases of colored sweating have occasionally been reported.

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* *Loc. cit.*

Treatment.—The general health should be regulated, and local stimulating applications made to the affected part. Deception may be guarded against by adopting the following plan, recommended by Spring and quoted by Geber : "The spot to be examined is carefully cleansed with oil, and, when perfectly dry, collodion is painted on in a thin layer, and allowed to remain for a few days. When the chromidrosis is actually present, it will show itself after the collodion pellicle is lifted off."

Abnormal changes of the sweat-secretion, different from those referred to, have often been recorded. Thus, urinous sweat (uridrosis) has been noted in which the urinous elements, especially urea, were mingled with the poured-out secretion. The deposit in urinous sweat consists of colorless or whitish crystalline material, which is slightly adherent to the skin; it can be detected by its solubility in alcohol, and giving with nitric acid the characteristic crystals of nitrate of urea.

The disorder occurs from faulty renal action, and has also been known to follow the use of jaborandi.

Hæmatidrosis, or sweating of blood, another example of abnormal secretion, will be noticed on page 119. Greenish and other peculiar changes in the color of sweat may appear after the ingestion of copper, iodine, tar, turpentine, and phosphorus, and after eating certain species of fish, and occasionally in the course of phthisis and malaria. The color of the sweat may also become changed from the resorption of excrementitious material in jaundice and yellow fever, in which case the secretion becomes yellow.

SUDAMINA.

SYNONYM.—Miliaria crystallina.

Sudamina is a non-inflammatory disease of the sweat-glands, characterized by the development of whitish or pearl-colored vesicles about the size of millet-seeds.

Symptoms.—Sudamina appears as discrete vesicles which may form upon any part of the body, but are more common on the face, neck, and trunk. They are about the size of millet-seeds, elevated, transparent or pearl-colored, and look like minute sweat-drops in the skin. They develop rapidly, continue discrete but crowded together, and disappear after the absorption of their contents, with desquamation of their covering. The course of the eruption is variable ; fresh lesions may appear frequently, and prolong the duration of the disease. Sudamina is distinguished from other vesicular eruptions, especially eczema and varicella, by the absence of inflammatory symptoms.

Pathology.—The vesicles are formed by the collection of the sweat in some part of the ducts, or between the layers of the epidermis, owing to the inability of the fluid to escape upon the surface.

Etiology.—The cause of sudamina is an elevation of temperature, which frequently follows in the course of many systemic affections, especially the fevers. It is observed in typhus, typhoid, and puerperal fevers, scarlatina, variola, rheumatism, pneumonia, tuberculosis, pyæmia, debility, and many other disorders. Exercise, when excessive in corpulent people, the wearing of a large amount of clothing, and sweating from baths or any cause, particularly in hot weather, may lead to sudamina.

Treatment.—The treatment applies to the disease which occasioned the sudamina. Local applications of a saturated solution of boracic acid, tincture of witch-hazel, or alcohol, alone or with half a drachm of camphor to five ounces, are most acceptable. Bland dusting-powders, as starch, arrow-root, the impure carbonate of zinc, or the subnitrate of bismuth, may also be employed.

CLASS II.

HYPERÆMIAS.

(*Hyperæmiæ.*)

The class of hyperæmias includes those disorders which are characterized mainly by the presence of an increased quantity of blood in the cutaneous vessels. The increase may be universal and affect the entire surface, but it is usually limited to certain regions of the body. It may be active or passive in character, and idiopathic in origin, or symptomatic of disturbances in remote portions of the system.

The increased blood-supply is always productive of changes in the color of the affected portion of the skin. The color of hyperæmic eruptions varies from light-red to dark-red or purple, but disappears upon pressure, to return as soon as the pressure is removed. Active hyperæmic eruptions may be accompanied by slight burning or itching sensations, and usually pursue an acute course.

Passive hyperæmia is usually indicative of mechanical or functional interference with the circulation. In the former case tight garters, bandages, or clothing may be at fault, and the affection disappears when they are removed; in the latter case, cardiac or valvular disease or varicosity of the veins may be the producing cause, and the hyperæmia is apt to remain for an indefinite period, and finally produce permanent pigmentation of the surface.

ERYTHEMA SIMPLEX.

Erythema simplex is a hyperæmic cutaneous affection characterized by the formation of reddish, non-elevated macules or patches on the general surface of the body.

Symptoms.—There are two varieties of erythema simplex, the idiopathic and the symptomatic. The idiopathic variety is generally subdivided into the three groups of erythema traumaticum, erythema caloricum, and erythema venenatum. The symptoms differ somewhat according to the form of the affection which may be present. In erythema traumaticum the skin is reddened and tender at the point which has been subjected to pressure or friction, but normal elsewhere. In erythema caloricum the skin is reddened, and more or less painful, but only at the point which has been exposed to intense solar or artificial heat. In erythema venenatum the eruption is more diffused, but it is painful, and limited to the regions with which the irritating or poisonous material has been placed in contact. In erythema symptomatica there is no pain or itching, and the eruption may appear upon any part of the surface. In some cases the abdomen is involved, in others the face, in others the limbs, and occasionally the whole surface is invaded. The lesions of erythema symptomatica are exceedingly numerous, and of all shapes and sizes, but they are ephemeral in character, frequently disappearing in a few hours, and rarely remaining longer than two or three days. In erythema traumaticum, venenatum, and caloricum the lesions are but few in number and more persistent. Erythema symptomatica is mostly preceded or accompanied by gastric or intestinal derangements.

Diagnosis.—The diagnosis of erythema simplex is usually easy. The only affections with which it could be confounded are rötheln, macular syphilis, and simple dermatitis. Rötheln, however, is accompanied by fever and catarrhal symptoms, phenomena which do not occur in erythema simplex. In macular syphilis the lesions are equal in size, circular in shape, and arranged in groups. In erythema symptomatica the lesions are of all shapes and sizes, and irregularly distributed. There is no specific history, and evidences of gastro-intestinal irritation are present. In dermatitis there is severe pain, and more or less increase of temperature.

Pathology.—The redness of the epidermis is due to dilatation of the capillaries of the superficial layer of the corium.

Etiology.—The causes of erythema simplex are numerous and varied. The idiopathic varieties are produced by the action of heat or cold, or by friction or pressure in any form, or by contact with acids, strong alkalies, aniline dyes, mustard, sulphur, arnica, cantharides, arsenic, antimony, poisonous plants, and other irritating substances. Symptomatic erythema results from the ingestion of improper food, or from worms, or from constipation, or other disorders of the gastro-intestinal tract. It may also arise from the irritation of dentition, or any disturbance of the nervous system.

Treatment.—The treatment varies with the cause and extent of the disease. Erythema symptomatica rarely requires any treatment beyond the administration of a gentle laxative. If worms exist, they should be removed by the employment of appropriate anthelmintic remedies. In idiopathic erythema no internal medication is requisite. In many cases the local irritation is removed by the application of cold water alone. In others, soothing ointments or lotions will usually bring immediate relief.

Prognosis.—The eruption is always trivial in character and speedily disappears.

ERYTHEMA INTERTRIGO.

Erythema intertrigo is a hyperæmic cutaneous affection produced by heat and the contact of opposing surfaces. It is characterized by a reddened condition of the skin, and accompanied by a sensation of heat or burning.

Symptoms.—Erythema intertrigo is that form of erythema which occurs in the natural folds of the skin, and wherever two opposing surfaces come in contact with each other; *e. g.*, as between the nates, beneath the mammæ, and in the axillary and inguinal regions. It is observed most frequently during the summer months, but may appear during any season of the year. It occurs especially in fleshy persons and in infants. The skin in the affected regions becomes reddened and chafed, and is more or less hot and painful to the touch. If the exciting cause be removed, or if remedial measures be instituted, the affection may be arrested in this stage. In many cases, however, it passes into a mild form of dermatitis. Occasionally it terminates in eczema.

The duration of erythema intertrigo varies from a day or two to several weeks. In some it remains throughout the heated term, and is a source of much annoyance and suffering. When it occurs in infants it is more or less obstinate to treatment, especially if the eruption is situated between the nates. The perspiration which usually accompanies the eruption may sometimes be so excessive and acrid as to produce extensive maceration and desquamation of the epidermis.

Diagnosis.—The diagnosis of erythema intertrigo is usually self-evident. The location and character of the eruption are sufficient to distinguish it from the lesions of any other disease. The erythematous patches of infantile syphilis occasionally simulate those of the innocent affection, but the existence or speedy appearance of other syphilitic lesions unerringly indicates the true nature of the disease.

Pathology.—The only pathological change that occurs in the great majority of cases of the eruption is dilatation of the blood-vessels of the corium. Excessive perspiration may produce maceration and separation of the epidermis, or of its superficial layers.

Etiology.—The exciting causes of erythema intertrigo are heat, and the friction or pressure of two opposing cutaneous surfaces. The predisposing causes are numerous, and include all circumstances which increase the temperature of the body or of the affected region, or which produce an irritable or sensitive condition of the skin. Among other direct or indirect causes may be mentioned summer weather, unusual exercise, heavy underclothing, tight or ill-fitting garments, sedentary habits, and constipation. In infants the irritation produced by worms and by acrid discharges from the bowels leads frequently to the disease.

Treatment.—No internal treatment is required, as a rule, except when constipation exists. In some cases, however, occurring in very fat persons, the best treatment consists in the daily administration, for two or three weeks, of full doses of any of the saline purgatives, in order to produce copious intestinal discharges. The local treatment is of the simplest possible character, and consists chiefly of cleanliness and rest. The affected surfaces should be bathed with cold water two or three times a day, and gently mopped dry with a soft cloth. Soap and friction are injurious, and should not be used. If practicable, the erythematous surfaces should be kept separate by the interposition of a piece of linen or soft muslin. Where this can not be done, they should be dusted over with any astringent non-irritating powder, as in the following formulæ:

℞ Bismuthi subnitratis,
Plumbi carb........................āā ℥ ss. M.
℞ Pulv. marantæ........................ ʒ ij.
Zinci oxidi........................ ʒ vj. M.

In many cases more benefit will be derived from the application of a bland ointment:

℞ Bismuthi subnitratis.................. ʒ iij.
Plumbi carb........................ ʒ ij.
Ung. zinci oxidi benz.................. ℥ iss.
M. Ft. ungt.

Lotions of lead-water and laudanum, of alum, borax, or sulphate of zinc, will be found serviceable in some cases.

Prognosis.—The eruption speedily disappears under treatment, or without treatment when the exciting or predisposing cause is removed.

CLASS III.

HÆMORRHAGES.

(*Hæmorrhagiæ.*)

CUTANEOUS hæmorrhages may occur from a rupture of the blood-vessels, as from external injury, or the blood-corpuscles may escape through the capillary walls and pass into the skin.

The lesions formed from hæmorrhages into the skin may assume certain appearances, which are known by the following names :

Petechiæ consist of small round or irregular spots, varying in size from a pin's point to a finger-nail.

Vibices are long, narrow, streak-like spots.

Ecchymoses are irregular patches, from the size of a coin to that of the palm of the hand, or larger.

Ecchymomata appear as variously sized and shaped patches or tumors, which may be flat or elevated.

Hæmorrhages into the skin which result from external injury are known as idiopathic, and those which occur from internal disease are termed symptomatic.

Idiopathic Hæmorrhage.—Here the hæmorrhage is usually the result of traumatism. Wounds, contusions, and all forms of injury may cause a rupture of the blood-vessels, and an extravasation of more or less blood into the skin and even the underlying tissue. The bites of numerous insects, particularly of the louse, bed-bug, and flea, are also causes of idiopathic hæmorrhages. The treatment consists in the application of remedies to hasten absorption. Occasionally stimulating ointments and lotions are of advantage. Mercurial ointments, especially the oleate, have proved of service. Localized hæmorrhagic spots which are on the face or exposed parts can be relieved and absorption hastened by leeching or puncturing, and painting them with a thick paste of carbonate of lead.

Symptomatic Hæmorrhage.—To this form belong all hæmorrhages which arise from systemic disturbance. They occur in connection with small-pox, typhus and cerebro-spinal fevers, and other diseases, and also at times in the course of urticaria, erythema nodosum, and pemphigus. There are several forms which are recognized as independent diseases, and call for separate description.

PURPURA.

SYNONYMS.—Hæmorrhœa petechialis—Blutfleckenkrankheit.

Purpura consists in the formation of hæmorrhagic patches on the skin of different sizes and shapes, slightly elevated or non-elevated, and not disappearing on pressure.

Symptoms.—Purpura may occur in three varieties, and, as they differ very much in their symptoms, it has been considered better to separately describe them, as follows :

PURPURA SIMPLEX.—Purpura simplex is seldom ushered in with constitutional disturbance. Rarely, it is preceded by lassitude, loss of appetite, and slight fever. The eruption may appear suddenly, usually overnight, or gradually in the course of several days. The hæmorrhagic spots are bright or deep red or purplish in color, and are variously shaped, and in size from a pin's point to that of a pea. They are not elevated, but are situated deep in the skin, and will not disappear on pressure. They occur mostly in numbers, irregularly over the surface, but have a predilection for the lower extremities, especially the thighs. Subjective symptoms, excepting a general soreness of the skin, are absent. Occasionally they may be accompanied by moderate itching, but seldom by pain. Wheals, however, at times develop as a complication, the itching being marked, and the condition is then known as purpura urticans. Blebs have also been observed in this variety of purpura. The disease usually runs its course in one or two weeks ; but it may be prolonged for months by the formation of successive crops of the eruption. It occurs generally in the debilitated, and especially in old persons. Purpura simplex has been known to result from the use of certain drugs, as quinine, chloral, salicylic acid, and iodide of potassium.

PURPURA RHEUMATICA, PELIOSIS RHEUMATICA.—Purpura rheumatica is, as a rule, preceded or accompanied by lassitude, despondency, impairment of appetite, constipation, fever, and rheumatic pains, especially about the joints. After a time, mostly in several days or a week, an eruption suddenly appears over the body, being more profuse on the abdomen and limbs. The hæmorrhagic spots, which are usually well defined, are somewhat raised or on a level with the skin, and the only subjective symptom which accompanies them is soreness of the skin. In color the spots are light-red or purplish, and in size they are generally about that of a finger-nail. They will not disappear on pressure ; but in time, as the blood is gradually absorbed, they change into yellowish and greenish tints, until finally they fade away entirely. The rheumatic pains sometimes abate, or disappear with the appearance of the eruption. In many cases, however, the constitutional symptoms continue throughout the disease, or appear in the form of relapses together with successive crops of the eruption.

The course and duration of the disease is uncertain—continuing weeks or months, or prolonged for a longer period. Hæmorrhage from the internal organs, especially the kidneys, may happen as a complication, and occasionally prove fatal. The disease is rare, and bears some relation to erythema multiforme, with which it has been associated at times. It occurs in both sexes about middle life, and is seen more frequently in women. The cause is obscure. I have seen several cases in which it was due to great nervous exhaustion, and in one instance to excessive venery.

Purpura Hæmorrhagica—Morbus Maculosus Werlhofii, or Land-Scurvy.—Purpura hæmorrhagica is a severe form of the disease. It is generally preceded or accompanied by pronounced constitutional symptoms, as lassitude, languor, debility, headache, loss of appetite, and fever. Suddenly hæmorrhagic spots appear, usually first on the limbs and afterward upon other parts of the body. The spots appear mostly in numbers, and of all sizes and shapes. At the same time, or shortly after the appearance of the eruption, hæmorrhages may take place from the mucous membranes, especially the mouth, gums, nose, fauces, kidneys, and intestines. The disease is uncertain in its course and duration. It may terminate favorably, suddenly or gradually, in a short time, generally in from one to four weeks, or lasting, with relapses, for quite a period. It is a dangerous disease, and will sometimes incline to a fatal termination. It occurs in the badly nourished, the debilitated, especially from nervous exhaustion, and also in those apparently of robust health.

Scorbutus, true scurvy, or sea-scurvy may, in this connection, be briefly alluded to. The constitutional symptoms are more marked in scurvy as a rule, but the purpura which it occasions is more apt to involve the deeper structures—the muscles, fascia, and subcutaneous cellular tissue. The internal organs may show in scurvy some complication; but there is less liability to hæmorrhage from the mucous membranes than there is in purpura hæmorrhagica. The gums in scurvy are, however, more decidedly affected: they are spongy, softened, and painful, and become the seat of ecchymomata and ulcerations. The disease arises from poor hygiene and food, particularly from an insufficiency of fresh vegetables and fresh meat, especially on vessels and in institutions. It appears slowly, and is chronic in its course; but inclines to disappear with the removal of the exciting cause and the use of appropriate remedies.

Pathology.—In purpura the extravasation of blood, as a rule, takes place suddenly, and passes into the different layers of the skin. It is usually found accumulated in the corium or in the subcutaneous cellular tissue. It occasions spots of various sizes and shapes according to the quantity effused and the permeability of the tissues. The blood, after leaving the vessels, at once becomes a foreign body in the skin.

Absorption occurs very slowly, the fluid portion being first removed. The corpuscles and coloring-matter which remain occasion various changes in hue—blue, purple, dark or bright red to green or yellow—as absorption gradually takes place, and the skin returns to its natural condition.

Treatment.—The treatment will depend upon the cause of the disease. Attention to diet and hygiene is essential. Rest is always of advantage, and if the hæmorrhage be extensive, it is absolutely necessary that the patient be kept in the recumbent position.

In purpura simplex the preparations of iron, especially the tincture of the chloride in full doses, one or two drachms, from three to six times a day, are valuable. Equal parts of the tincture of the chloride of iron and the fluid extract of ergot often act most decidedly. Quinine, belladonna, and the mineral acids are also to be commended. A prescription that has often been serviceable is ten drops of dilute phosphoric acid with one eightieth of a grain of sulphate of strychnine in water, three times daily. The chlorate of potassium is also useful in from five- to twenty-grain doses, taken likewise. Harkin claims for it excellent results. The fluid extract of witch-hazel in from ten- to thirty-drop doses, *ter diem*, has also been productive of benefit. Friction with spirits, tincture of witch-hazel, salt and water, vinegar and water, solutions of alum or tannic acid, cold water or ice, is most suitable and advantageous.

PURPURA RHEUMATICA demands the most careful attention to hygiene, and often requires rest in bed or a complete change of air, and occasionally also of occupation. The diet must be nutritious, with the addition of some stimulant. The remedies above recommended may also be used. Salicylic acid or digitalis will also be found beneficial. Ergotine can be employed hypodermatically, if necessary.

PURPURA HÆMORRHAGICA is dangerous and often fatal, and demands active and energetic treatment. Rest in bed is imperative, with nutritious food and stimulation. Any of the remedies already alluded to may be employed. Digitalis and the tincture of the chloride of iron, in divided doses, often act promptly. Hypodermatic injections of ergotine have also been followed by good results. Oil of turpentine, acetate of lead with opium, tannic and gallic acids, and large doses of quinine, have all been used with success. Electricity is said to have proved serviceable after other remedies have failed. The external applications, already referred to, can also be resorted to with good effect.

TRUE SCURVY requires fresh air, acids, fresh vegetables, fruits, and meats. Quinine, iron, and strychnine are serviceable remedies to employ. The condition of the gums and mouth may be promptly relieved by chlorate of potash taken internally, and used also as a wash.

Prognosis.—In purpura simplex the prognosis is always favorable, although the case may be tedious in recovery. Purpura rheumatica likewise inclines to recovery. It is, however, obstinate, liable to frequent relapses, and may remain indefinitely. Purpura hæmorrhagica is a dangerous and at times a fatal disease, and it is often impossible to foretell its termination; hence, the prognosis should be given with great caution.

HÆMOPHILIA.

Hæmophilia is a congenital and frequently an hereditary affection, consisting in a proneness to unusual hæmorrhages from the skin and mucous membrane. Men are noticed to be more frequently affected by it than women. It may take place spontaneously, or from some traumatic cause. It mostly occurs from some slight injury, as from wounds and contusions. Vaccination and leeching are known to excite it, giving rise to ecchymosis and immoderate bleeding from the capillaries. Swelling of the joints sometimes coexists with the hæmorrhage from blood being poured out in them. Legg* states that microscopic examination of the blood and vessels has shown no apparent change, yet, he further adds, it is probably the vessels that are at fault. The treatment consists in large doses of either the tincture of the perchloride of iron or the fluid extract of ergot. Locally the same styptics may be employed, with compression. Cold douches or the application of ice are also valuable. After the attack, the patient should take for a period large doses of iron, with cod-liver oil, in conjunction with a nutritious diet. The prognosis should be carefully guarded, as death has been reported in some instances to follow the slightest injury from excessive and continuous hæmorrhage.

HÆMATIDROSIS.

Synonyms.—Hæmidrosis—Sudor sanguinea, or bloody sweat.

Hæmatidrosis—a rare disease—is characterized by the escape of a fluid containing blood through the sweat-glands. The discharge is generally small in quantity, and the condition localized. Bleeding stigmata and neurotic excoriations are only forms of hæmatidrosis. The disease is seen most frequently in hysterical women, and during menstrual derangement. Debility of the nervous system is also an exciting cause, and it has been known to follow outbursts of passion and great nervous strain. The treatment is similar to that of purpura. Belladonna has been recommended as a remedy, and reported to have been successfully employed.

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* A Dictionary of Medicine, pp. 568, 569. D. Appleton & Co., 1884.

CLASS IV.

EXUDATIONS.

(*Exudationes.*)

RUBEOLA.

Synonyms.—Morbilli—Measles.

Rubeola is an acute, contagious, febrile disease, characterized by the development of a papular eruption over the surface of the body, and accompanied by catarrhal inflammation of the mucous membranes of the respiratory passages.

Symptoms.—After an incubative period of from nine to eleven days the disease commences with a feeling of chilliness or general malaise, followed in a few hours after by fever, headache, muscular soreness, and all the symptoms of a severe cold. The eyes are injected and watery. The nasal mucous membrane is dry and tumid at first, but soon becomes the seat of a sero-purulent discharge. Sneezing is frequent. The pharyngeal and laryngeal mucous membranes are red and swollen. There is a harsh, dry, irritating cough, and more or less sub-sternal tenderness. The face is flushed, and the pulse is increased in frequency. The urine is high-colored, and the bowels are constipated. The temperature rises rapidly, often reaching 103° or 104° Fahr. on the evening of the first day. It then remains stationary until the end of the second or the beginning of the third day, when a marked remission of the fever occurs, the temperature falling to almost normal. The headache lessens in severity, but the other symptoms do not abate. The eyes become swollen and sensitive to light, and lachrymation is profuse. The voice is hoarse and husky, and respiration is increased. The bronchial mucous membrane becomes involved, and the sensation of soreness and constriction in the chest is decided. Coughing is frequent and painful, and auscultation reveals the presence of numerous large and small mucous râles. This febrile remission lasts about twenty-four hours, when the temperature rises again to its former height, and remains there until the characteristic eruption has been fully developed. It usually appears on the fourth day, but may be delayed until the fifth, and consists of numerous coarse, red papules, which vary in size from a pin's head to a small shot. These papules are somewhat crescentic in shape, and are slightly elevated above the surrounding healthy skin. They are generally noticed first on the face and chest, but spreading in twenty-four hours over the entire surface of the body. They are developed most abundantly upon the face, where they are arranged in groups or clusters. In some cases the adjacent papules coalesce, forming one or more large, irregular blotches. The eruption remains at its height for about forty-eight hours, or until the seventh or eighth day of the disease, when it commences to fade in the order of its development, and usually disappears entirely in two or three days. A slight discoloration will probably remain for a week or two at the site of each papule, but in some cases more or less desquamation of the epidermis occurs. The febrile and catarrhal symptoms decline when the eruption begins to fade, so that convalescence, as a rule, takes place in ten or eleven days from the beginning of the disease. A slight bronchial cough, however, may remain for a week or two longer.

In more severe cases all the symptoms are aggravated by the development of the eruption. The temperature rises to 105° or 106° Fahr., the inflammation spreads to the finer bronchial tubes, or even to the lung-structure itself, producing capillary bronchitis or pneumonia. Diarrhœa may appear, and the urine become scanty and albuminous. Conjunctivitis, iritis, and otitis also sometimes occur. In the variety known as black measles the eruption is dark red or purplish in color, and so abundant as to almost cover the entire surface. The temperature rises to 106° or 108° Fahr., the pulse is rapid and feeble, the breathing shallow and irregular, and the catarrhal symptoms intense. The tongue is brown and dry, and the teeth are covered with sordes. Blood oozes from the gums and lips, and hæmorrhagic extravasations arise beneath the mucous and cutaneous surfaces. The urine is scanty or suppressed, and offensive or bloody discharges take place involuntarily from the bowels. The patient soon becomes comatose, or passes into a low, muttering delirium, and death may ensue on the second or third day after the appearance of the eruption.

Diagnosis.—The diagnosis of measles is comparatively easy. The only diseases for which it might be mistaken are variola, rötheln, typhus fever, and influenza. In variola, however, the eruption appears on the third day, respectively in the following order: papular, vesicular, and pustular. There are no catarrhal symptoms, and the fever declines as soon as the eruption appears. In rubeola it is seen on the fourth or fifth day, and never becomes vesicular or pustular, but remains papular until its disappearance. The catarrhal symptoms are marked, and the fever, which remits on the second or third day of the disease, becomes aggravated prior to or during the appearance of the eruption, and remains high until all the papules have come out. In doubtful cases a day's delay will enable an accurate diagnosis to be made.

In rötheln the eruption may appear at any time during the first three days of the disease, but it is irregularly distributed over the surface, and consists of rose-colored spots and blotches, which are unlike the coarse crescentic papules of rubeola. In rötheln, moreover, the fever and catarrhal symptoms are comparatively insignificant, and bronchitis, pneumonia, and the other complications of rubeola, do not occur.

In typhus fever the eruption is coarsely papular, but is scanty, and limited to the body and limbs, never appearing upon the face. There are no catarrhal symptoms, but the cerebral are intense. The remission of the fever on the second or third day, and the appearance of the eruption on the fourth day, suffice to distinguish rubeola from influenza.

Pathology.—The pathological changes in rubeola consist of intense hyperæmia of the capillary vessels of the cutaneous papillæ, followed by a slight serous exudation into the surrounding tissue. The respiratory mucous membranes also become actively congested, and dotted with dark-red spots, apparently similar in character to the cutaneous manifestations. The dark color of the eruption, in the malignant variety, is symptomatic of morbid changes in the blood. The hæmorrhagic extravasations are due to rupture of the capillary vessels. In some cases the spleen is swollen and hyperæmic, and the kidneys are enlarged and filled with blood.

Etiology.—Rubeola may occur sporadically or as an epidemic. It prevails in all countries and at all seasons of the year, but it happens most frequently during the spring and autumn months. It is a disease of childhood especially, but is occasionally observed in adults. It is produced by a specific poison, and is contagious. It may be communicated not only by actual contact of the sick with the healthy, but also through the medium of wearing apparel and other articles in use by the patient. It is also spread by atmospheric diffusion. The secretions of the nasal and broncho-pulmonary mucous membranes appear to be the principal agents in spreading the disease.

Treatment.—The patient should be given a mild, nourishing diet, consisting chiefly of milk-toast, and light soups, and allowed to drink freely of cool water and lemonade. The room should be well ventilated, but kept moderately warm, and the face and neck sponged with cold water four or five times a day. Should there be other children in the house, of a weak or scrofulous constitution, it is prudent to send them away at once; if otherwise healthy, they may be permitted to remain.

The medicinal treatment should be directed to moderate the fever and catarrhal symptoms, alleviate the cough, promote expectoration, and prevent the development of further complications.

In ordinary cases I usually direct the patient to take—

℞	Tinct. aconit. rad.	♏xij.
	Syr. ipecac.	f ʒ ss.
	Syr. scillæ. comp.	f ʒ ij.
	Syr. lactucarii.	f ʒ x.

M. Sig.: One teaspoonful every four hours.

I also order the following powders, one to be taken every second or third night at bedtime:

℞ Hydrarg. chlor. mitis	gr. iij.
Resinæ jalapæ	gr. vj.
Pulv. sacchar	gr. x.

M. Ft. chartæ no. vj.

If restlessness at night is exhibited, five to ten grains of sodium bromide may be given three times a day, or from two to five grains of Dover's powder at bedtime. In the more severe cases, when the fever is high and the eruption scanty or late in development, ice-bags should be applied to the head, and the patient placed in a cold bath or wet pack, if necessary.

When the eruption begins to decline, and the febrile and other symptoms abate, it is good practice to give from three to ten grains of quinine daily, for a week or more. A stimulating expectorant mixture, like the following, is advisable during convalescence :

℞ Tinct. capsici	♏ v.
Tinct. sanguinariæ	f ʒ ss.
Tinct. nucis vomicæ	f ʒ ss.
Tinct. cinchonæ comp	f ℥ iij.

M. Sig.: Half a teaspoonful to a teaspoonful four times a day.

In black measles, or the malignant variety of rubeola, the high temperature should be reduced by the wet pack or cold bath, and turpentine, quinine, and the tincture of the chloride of iron freely administered. Benefit has also been derived from the use of camphor and the carbonate of ammonia. Carbolic acid and chlorate of potassa have also been recommended.

The complications of rubeola must be met as they arise. In pneumonia and capillary bronchitis, turpentine, carbonate of ammonia, and stimulants will be found indispensable. When the bronchial tubes are clogged with mucus, emetics will be of service. When the urine becomes suppressed, free diaphoresis and purgation should be produced. If diarrhœa occur, opium and the mineral acids are indicated. Patients of an anæmic or scrofulous disposition should be given cod-liver oil, chlorate of potassa, quinine, and other tonics, for months after convalescence has been established, in order to restore the tone of the system.

Prognosis.—The prognosis is favorable in simple, uncomplicated cases. The deaths which occur are due rather to pneumonia and other complications than to the disease itself. As a rule, the older the patient the severer the case. Weak and scrofulous persons bear the disease badly, and are extremely liable to be attacked by iritis, otitis, or other distressing complications. They are also peculiarly liable to develop phthisis after convalescence.

The malignant or purpurous variety of rubeola is very dangerous. Over one half of the sporadic cases end fatally, and when it occurs in an epidemic form over ninety per cent. of those affected die.

RÖTHELN.

SYNONYM.—German measles.

Rötheln is a mild, contagious febrile disease, characterized by the development of rose-colored spots, of various shapes and sizes, on the general cutaneous surface.

Symptoms.—The disease usually begins with a slight fever, accompanied by moderate headache and a feeling of general *malaise.* The pulse is increased in frequency, and the temperature varies from 99° to 101° Fahr. The mucous membrane covering the fauces and tonsils is reddened and tumid, and there is some stiffness and soreness at the angle of the jaws. In many cases the conjunctiva is injected, and there is increased lachrymation. The cervical glands are swollen occasionally. The eruption usually appears on the first or second day, but may not be observed until the third day. It consists at first of a number of small, round, rose-colored spots, which turn white on pressure. They vary in size from a pin's head to a small pea. They are arranged in clusters or groups, and are slightly elevated above the surrounding healthy skin. They generally appear first on the face and scalp, and rapidly extend over the remainder of the body. Some of the clusters on the body and limbs coalesce, forming large, irregularly shaped red blotches; but the facial spots almost invariably remain discrete. The eruption attains its maximum development in twenty-four hours. It remains stationary for a day or two longer, and then commences to fade, disappearing completely on the fifth or sixth day of the disease. In some cases a slight discoloration remains for a short time at the site of each spot, but desquamation rarely occurs. The febrile and other symptoms pass away with the eruption.

Diagnosis.—The only diseases with which rötheln could be confounded are scarlatina, measles, and erythema symptomatica. In scarlatina, however, the fever is higher, the throat symptoms are more intense, and the eruption consists of a diffused scarlet efflorescence, which appears first on the neck and chest, and then spreads over the whole body. In measles the eruption is crescentic and coarsely papular. It appears on the fourth day of the disease, and is accompanied by a marked exacerbation of the fever. Severe coryza and bronchitis are also present.

In erythema symptomatica the spots are rose-colored, but they are larger in size and fewer in number than those of rötheln, and they rarely appear on the face. They are usually secondary to some gastric derangement, and are not accompanied by febrile symptoms.

Pathology.—An active congestion of the capillaries of a number of groups of the cutaneous papillæ occurs, but exudation does not ensue, and the discoloration disappears when the congestion subsides.

Etiology.—Rötheln is almost exclusively a disease of childhood, but it may occur in adult life. It is produced by a specific poison, and propagated by contagion. One attack is protective against subsequent attacks, but the development of rötheln does not secure immunity from measles or scarlatina.

Treatment.—The majority of cases do not require any treatment but rest and a light diet, and confinement to the house for a few days. In the more severe, where the patient is restless and decidedly feverish, and complains of sore throat, a mild diaphoretic mixture should be ordered, and the bowels opened freely by a saline laxative.

Prognosis.—The prognosis is always favorable.

SCARLATINA.

Synonyms.—Scarlet fever—Scarlet rash.

Scarlatina is an acute, contagious febrile disease, characterized by the development of a diffused scarlet rash over the whole or the greater part of the body, accompanied by inflammation of the throat and various nervous phenomena, and terminating in desquamation of the outer layers of the epidermis.

Symptoms.—There are three well-marked varieties of the disease: scarlatina simplex, scarlatina anginosa, and scarlatina maligna. The invasion is exceedingly brief in all three varieties. The period of incubation varies from three to seven days; that of contagion extends from the beginning of the initial fever until about a week after all febrile symptoms have disappeared.

In scarlatina simplex the disease is ushered in by a slight chill, or by an attack of apparently causeless vomiting; or, in nervous children, by convulsions. These symptoms pass away in an hour or two, and are immediately followed by fever, which soon becomes high. The face is flushed, the skin hot and dry, the pulse rapid and full, and the respirations become more frequent. The urine is scanty and high-colored, and the bowels are usually constipated. The tongue is red at the tip and edges, but covered in the centre with a white or yellowish fur. The throat is reddened, the cervical glands are enlarged, and there is some pain on swallowing. More or less headache and restlessness are also present. The temperature varies from 101° to 103° Fahr., with a slight morning remission and evening exacerbation. The pulse varies with the height of the fever and the age of the patient. In some cases it reaches 130, in others it does not rise above 100.

The characteristic eruption appears on the second day of the fever. It consists of a fine pale-red or scarlet efflorescence, which appears first on the face and neck and upper part of the chest, and within twenty-four hours diffuses over the entire surface of the body. In some cases it may present a punctated appearance, but it is not elevated, and it disappears upon pressure. It is most intense in the flexures of the joints.

During its development the throat symptoms increase in severity, and the tongue becomes red and papillated, forming the characteristic "strawberry-tongue" of the disease. The fever is uninfluenced by the eruption, and remains at its height until the fifth or sixth day of the disease, when it begins to decline. The throat symptoms also lessen, the restlessness passes away, and the eruption disappears first from the face and neck, and then from the other portions of the body. The period of decline usually occupies about three days, so that the eruption and the fever disappear and the patient is convalescent on the eighth or ninth day of the disease. Some desquamation of the epidermis occurs, but it may be so slight as to almost escape notice, or to produce only a roughened appearance.

In severer cases the mode of onset is the same, but all the symptoms are more intense. The fever may reach 105° Fahr., the pulse ranging from 110 to 140; the fauces and tonsils become red, swollen, and painful, and covered by a pultaceous deposit. Swallowing is difficult and painful. The urine is dark-colored and albuminous, and more or less delirium is present. Convalescence does not occur until the ninth or tenth day, and is accompanied by considerable desquamation.

In scarlatina anginosa the temperature may reach 107° Fahr., the pulse varying from 120 to 160, but the throat symptoms are prominent early in the attack, and soon become intense. The cervical glands are hard and swollen. The fauces, tonsils, and pharynx become inflamed and swollen, and covered by an offensive tenacious diphtheritic deposit. Superficial ulceration occurs at various points, rendering deglutition painful or almost impossible. In some patients the mucous membrane lining the posterior nares and the Eustachian tubes become involved, resulting in serious impairment of smell and hearing.

In a majority of cases of this type the disease reaches its height about the eighth or ninth day. The fever then slowly lessens, the swelling of the mucous membrane subsides, the ulcerative process ceases, and reparative action begins. The eruption also gradually disappears, so that the convalescent stage begins about the fourteenth day of the disease. The desquamation of the epidermis which then occurs is usually profuse, and may continue for several weeks.

In unfavorable cases the tonsils and fauces become enormously swollen, or attacked by gangrene. The temperature rises rapidly, and the symptoms assume a typhoid type. The pulse becomes small, rapid, and feeble, and the respiration quick and irregular. The urine is either suppressed, or scanty and albuminous. Coma alternates with delirium, and death takes place between the fifth and tenth days from exhaustion or uræmic poisoning.

In scarlatina maligna the temperature is extremely high from the beginning, frequently rising to 110° Fahr. The pulse varies from 150 to 200. The respiration is irregular and sighing. Convulsions are frequent, but in some cases the patient lies profoundly comatose. The throat is swollen, and covered by a membranous deposit. The glands of the neck are enlarged. The eruption is developed in patches of a dark-red or purplish color, and may not appear until the fourth or fifth day. Sometimes hæmorrhages take place in the skin and mucous membranes. Recovery is rare, and death usually occurs about the third or fourth day.

Sequelæ.—Dropsy, rheumatism, and otitis are the most frequent sequelæ of scarlatina. Chorea and valvular disease have also been observed to follow it. The otitis is usually purulent in character, and may result in permanent deafness, but a spontaneous cure may follow after months or years. The rheumatism is generally subacute, but may assume the acute variety. Dropsy is the most important and the most frequent sequela of scarlatina. It generally appears after the end of the acute stage, when desquamation has been well established. In some cases it is developed after exposure to cold, but frequently occurs without any apparent exciting cause. It is first manifested by œdema of the eyelids and face, but soon becomes general in character. The shortness of breath which usually accompanies it is caused by the pressure of the fluid which has been effused into the pleural and peritoneal cavities. Scarlatinal dropsy is due in the majority of cases to acute Bright's disease, but in a small percentage it is symptomatic of a slight congestion of the kidneys. The urine is scanty, albuminous, and high-colored, but rarely suppressed. Recovery is the rule.

Diagnosis.—It has been said that scarlatina can be diagnosed during the prodromal stage by the extreme rapidity of the pulse. This will not hold good in all cases, however. The rapidity of the pulse depends upon the age of the patient and the height of the fever, and not upon the precise nature of the disease. I have seen several cases of scarlatina in children, aged from five to seven years, in which the pulse never rose above 100. On the other hand, I have observed many of the same age who had simple or ephemeral fever, in which the pulse varied from 120 to 150. Still, if the pulse is 120 or over, and the fever has been preceded by convulsions, or by an attack of causeless vomiting, scarlatina may be suspected, and then the patient should be isolated, in order to prevent the possible spread of the disease.

After the eruption has appeared the diagnosis is easy. The high fever, the sore throat, and the diffused scarlet efflorescence appearing on the second day, form a trio of symptoms which point unerringly to the true nature of the malady. Roseola and rötheln are characterized by the development of irregular scarlet blotches which present a superficial resemblance to the eruption of scarlatina, but the high fever and throat symptoms of the latter disease are absent. In dengue, or break-bone fever, the eruption is red and diffused, and the temperature high, but the joints are swollen and painful, while the throat is not involved. In some cases of measles the eruption consists at first of a large number of bright-red spots, which when closely aggregated present a striking resemblance to scarlatina. In measles, however, there are no throat symptoms, but coryza and bronchitis are present, and the eruption appears on the fourth day; and, if not papular when first observed, becomes so within a few hours.

Pathology.—The eruption of scarlatina is produced by active congestion of the capillaries of the papillary layer of the corium. The differences in the intensity of the color in various regions of the body are due to variations in the intensity of the morbid process. Exudation of serum does not occur to any marked degree, but the dilated blood-vessels compress the surrounding tissues and narrow the calibre of the lymph-spaces so that the nutritive supply of the epidermis is diminished or cut off. The exfoliation or desquamation which follows is due in great part to this interference with nutrition, and probably in part also to a disturbance of the terminal filaments of the trophic nerves. It may be so slight as to escape notice, or merely produce a roughened condition of a portion of the surface, or it may be profuse and continue for months after convalescence. In some cases the skin peels off in large flakes; in others, the hair falls out and the nails drop off. The hæmorrhagic extravasations which occur in scarlatina maligna are due to rupture of the capillary vessels.

The mucous membrane lining the pharynx and the buccal cavity becomes hyperæmic and swollen. The tonsils become enlarged and covered with a purulent exudation. In severe cases suppuration ensues, or a diphtheritic membrane is formed, and rapidly extends to the adjacent structures. Ulceration of the soft palate and of the Eustachian tubes, followed by destruction of the tympanum, may occur. Œdema of the pharynx or larynx may be produced by the infiltration of serum, and either seriously interfere with breathing or suddenly prove fatal. In other cases suppurative inflammation of the areolar tissue, followed by the formation of abscesses in distant portions of the neck, has been observed. Granular degeneration of the gastric tubules and of Peyer's patches often follow. Pneumonia, bronchitis, pericarditis, endocarditis may take place, but present no special changes at the autopsy.

The changes in the kidneys vary with the type of the disease. In malignant cases, in which death results during the first two or three days, the kidneys appear paler than normal when cut, but dotted by a few minute hæmorrhages. When death is deferred for several days, more hæmorrhagic spots will be found, and occasionally minute abscesses are observed. These are the cases in which death ensues before the development of dropsical symptoms. The dropsy of scarlatina is due usually to acute parenchymatous nephritis, and sometimes to simple congestion of the kidneys. In the latter the kidney-tubules are filled with the epithelium which has been exfoliated from their walls. The capillaries are engorged and tortuous, and the cortical substance presents evidences of beginning granular degeneration.

Etiology.—Scarlatina may occur sporadically or in the form of an epidemic, but never originates spontaneously. It is always produced by a specific poison which is contained in the breath, in the saliva, in the epidermis, and in the excretions of scarlatina patients. This poison is extremely diffusive, and attaches itself not only to the clothing, but also to the furniture, carpets, and other articles in the room, and even to the walls of the apartment. It is also wafted from place to place by the atmosphere. It is exceedingly tenacious of life, and may retain its activity for years.

Scarlatina may be contracted by direct contact with an infected person, or through the medium of clothing, furniture, or walls, but there is reason to believe that its propagation is largely due to atmospheric diffusion of the epidermic scales of patients suffering from the disease. Its development is favored by bad hygiene and weakened vitality. Scarlatina may occur at any age, but is most frequently met with between the second and twelfth year, and is rarely observed after the fortieth year. One attack is protective, as a rule, against subsequent attacks, but exceptions have been noticed.

Treatment.—An appropriate diet is of the utmost importance. The patient's stomach should not be overloaded, but his vital forces must be sustained. With this end in view a moderate quantity of milk, milk-toast, beef-juice, or light, nourishing soup, should be given regularly every four hours through the day. In order to prevent the spread of the disease, if there are other children in the household they should be sent away, and the patient placed in a cool, well-ventilated room, as near the top of the dwelling as possible. All clothing, carpets, pictures, and unnecessary articles of furniture should be removed from the chamber, and no one but the physician and nurse permitted to enter until convalescence has been well established and the room thoroughly disinfected. The clothing and other articles that have been in contact with the patient should be disinfected or destroyed, the epidermic scales collected and burned, and the saliva and excreta disinfected and removed as soon as possible.

Medicinally, the aim should be to secure the elimination of the poison, moderate the intensity of the fever, alleviate the throat symptoms, and prevent the occurrence or lessen the severity of the cerebral, renal, and other complications.

In ordinary cases of scarlatina simplex I usually begin the treatment by directing from half a teaspoonful to a dessertspoonful of the following mixture to be taken every four hours, according to the age of the patient:

℞ Tinct. aconiti rad	♏ xxiv.
Potassii chloratis	ʒ ss.
Infus. digitalis	f ℥ iij.

I also order three powders, each containing one grain of calomel and five grains of bicarbonate of soda, one powder to be taken every other night. I advise the entire body to be sponged three or four times a day with cold water, and to be thoroughly anointed every morning with a mixture composed of ten minims of oil of peppermint and three ounces of cod-liver oil. The throat symptoms are generally light, and can usually be alleviated by permitting the patient to swallow small pieces of ice from time to time, or to drink freely of cool water. When the fever subsides, which generally occurs on the fifth or sixth day, I discontinue the aconite mixture, and substitute the following prescription, to be taken in the same doses and in the same manner:

℞ Tinct. nucis vomicæ	♏ xii.
Tinct. digitalis	f ʒ ss.
Potassii chloratis	ʒ ss.
Aquæ	f ℥ iij.

Three or four days later, when convalescence is fully established, I place the patient upon quinine, chloride of iron, or other tonic treatment.

In cases of greater severity, presenting high fever with delirium, and difficulty and pain in swallowing, I increase the amount of aconite and digitalis, place ice-bags to the head and throat, and follow the calomel and soda with a purgative dose of sulphate of magnesia or sulphate of soda.

In scarlatina anginosa the fever and delirium can be moderated in the same manner. The throat symptoms require special and vigorous treatment. The offensive pultaceous deposits should be removed by mopping or gargling the surface four or five times daily with a solution of common salt, chlorate of potash, boracic acid, or thymol. If the swelling of the tonsils becomes excessive, they should be painted with tincture of the chloride of iron or a thirty-grain solution of nitrate of silver. If suppuration occurs, the pus should be let out at once. If a diphtheritic membrane forms on the tonsils or fauces, equal parts of the solution of chlorinated soda and water should be used as a gargle, or applied, full strength, to the affected surface with a camel's-hair brush. Benefit can also be obtained by gargling the throat with yeast or with a solution of capsicum. Immediate and permanent improvement sometimes follows the use of an emetic of ipecac., apomorphia, or of common salt and water. The stomach is emptied by this means of a mass of foul pus—which had gradually oozed down into it, and, without this precaution, would be absorbed into and poison the general system—the membrane is detached from the pharynx and fauces, and a clean surface left, to which appropriate applications can then be made.

If œdema of the pharynx or of the glottis occurs, the affected part should be freely scarified, or tracheotomy performed. Ulcerations of the tonsils, fauces, and soft palate can be treated by the application of a five-grain solution of nitrate of silver. In cases of scarlatina in which the pulse is quick and feeble, aconite should not be employed. Instead, I give the patient small doses of turpentine or of belladonna and digitalis every three hours, and from one half to two grains of quinine in combination with half a grain of capsicum every four hours. Camphor or carbonate of ammonia may sometimes be used with benefit. According to Dr. Illingworth,* the biniodide of mercury will yield excellent results.

In scarlatina maligna every effort should be made to reduce the high temperature—the cause of all the other complications of this variety of the disease. The patient should be placed in a cold bath, or wrapped in a wet pack and ice applied to the head and neck. The bowels should be freely opened, and aconite, veratrum viride, or other arterial sedatives promptly administered. After the temperature has been reduced to the safety limit, the treatment may be conducted in the manner indicated for the other varieties of the disease.

In scarlatinal dropsy small doses of digitalis and acetate of potassium may be given with benefit, and the patient permitted to drink water and cream-of-tartar lemonade freely, but stimulating diuretics should be avoided. Diaphoretics and hydragogue cathartics are mainly to be relied on to secure the elimination of effete material, and relieve the engorged kidneys. In addition, leeches or cups are useful, applied to the lumbar region.

The convulsions that occur in the early stages of scarlatina are due to cerebral congestion arising from the height of the fever or the excessive arterial pressure, and can be relieved by the application of ice to the head, and the administration of purgatives and arterial sedatives; chloral and the bromides are also of service. Convulsions in the later stages of the disease are usually due to uræmic poisoning from the suppression of urine, and can only be relieved by free diaphoresis and catharsis, followed by a re-establishment of the functions of the kidneys.

Prognosis.—The prognosis varies with the type of the disease and the age of the patient. The average mortality in all cases has been estimated from seven to ten per cent. In some epidemics over half of those who are attacked die in spite of all treatment. Cases of scarlatina simplex generally recover. The greatest danger in this form of the disease is from nephritis, which may be severe in an otherwise mild case. The majority of patients, however, recover under appropriate treatment, even after the dropsical accumulation has become extensive. A guarded prognosis should be given in the cases of adults and very young children. Pregnancy also exerts an unfavorable influence.

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* Provincial Medical Journal, August, 1886.

In scarlatina anginosa the prognosis is always grave, but from twenty-five to fifty per cent. usually recover.

Scarlatina maligna almost invariably terminates fatally.

VARIOLA.

Synonyms.—Small-pox—Blattern—Variole.

Variola is an acute, specific, contagious, febrile disease, characterized by the development of an eruption which is papular at first, but speedily becomes vesicular, and then pustular.

There are four well-marked varieties—variola discreta, variola confluens, variola maligna, and varioloid—all of which are preceded by a period of incubation, varying from five to fourteen days.

Symptoms.—Variola Discreta.—This form of the disease is generally ushered in by a moderate chill, accompanied by a dull, aching pain in the lumbar regions. The pulse is small and feeble, the face pale, and there is more or less nausea. The chill is of short duration, and is usually succeeded, in an hour or two, by fever, which soon becomes high. The pain in the lower portion of the back increases in severity as the temperature rises, and extends into the hips and thighs. The respiration is increased, the face is flushed, the conjunctivæ are injected, and more or less headache supervenes. The patient is disinclined to take food, but suffers from thirst. The tongue is coated with a thick, white fur, the stomach becomes disordered, and vomiting is frequent. The skin is dry and hot. The urine is scanty and high-colored, micturition is painful, and the bowels are constipated. The patient is restless, and in some cases slight delirium occurs. The temperature may reach 106°, but usually ranges between 103° and 104°, with a slight morning remission and an evening exacerbation. The pulse varies in accordance with the height of the fever. In adults it ranges from 100 to 140, and in children from 120 to 180. About the end of the third or the beginning of the fourth day of the fever the characteristic eruption appears. It consists of a number of coarse, reddish, papular spots, which feel like particles of small shot imbedded in the skin. They are hard, and slightly elevated above the surrounding surface, and become pale on pressure. They first appear around the lips and on the cheeks and forehead, and then on the chest and arms and remaining portions of the body. They may also appear on the pharynx, larynx, trachea, and other mucous surfaces. They are isolated, or arranged in clusters, as in the so-called corymbic variety, but do not manifest any disposition to coalesce, as in variola confluens. As soon as the eruption appears the fever declines, the nausea, headache, and backache become less severe, and, in mild cases, almost completely disappear. The papules, however, produce more or less itching and discomfort. Ordinarily, they are all developed within twenty-four hours, and no new ones appear after that time. On the second day of the eruption, or the fourth or fifth day of the disease, the top of each papule may be observed to present a vesicular appearance, and, on the following day, each papule is completely transformed into a vesicle which contains a clear, serous fluid. The vesicles increase in size until the fourth or fifth day of the eruption, which corresponds with the seventh or eighth day of the disease. They are then surrounded by an indurated inflammatory areola, and present an umbilicated appearance. Their contents undergo a marked change at this time, first becoming turbid, then milky, and finally purulent in character. This process marks the beginning of the stage of suppuration, and the transformation of the vesicles into pustules, and is accompanied by marked symptomatic or secondary fever. The temperature rises higher than ever, even reaching 105° or 106°. The pulse and respiration increase in a corresponding ratio. The headache, backache, nausea, and vomiting return in an aggravated degree. The pustules enlarge, and the surrounding skin becomes intensely swollen. The mucous membrane lining the nasal passages and the buccal and pharyngeal cavities is irritated and inflamed. Swallowing is painful, and bronchitis, pneumonia, or pleurisy may occur. Some of the pustules rupture spontaneously, or from the pressure of the clothing ; others are torn by the patient in his endeavor to obtain relief from the heat and itching. The remainder begin to dry up about the eleventh day of the eruption, or the fourteenth day of the disease. A dark-brown spot appears in the centre of each, which increases in size until it forms a brown crust or scab which covers the whole area of the pustule, and is firmly adherent to the underlying surface. The febrile symptoms lessen as soon as the process of desiccation commences, the tumefaction gradually disappears, and the patient passes into the stage of convalescence. The process of healing continues beneath the scabs, but, as more or less of the corium is destroyed by the suppurative process, minute cicatrices or pits are formed at the site of each pustule. The scabs finally drop off about the sixth or seventh day after desiccation begins. The surface is then seen to be roughened and reddened ; the face is especially disfigured. The hair frequently falls out during convalescence, and the nails occasionally drop off.

Variola Confluens.—This variety is marked by the greater severity of the symptoms of every stage of the disease, and by the earlier development and confluent character of the eruption. The initial chill is violent and protracted, and the precursor of others. The primary fever, the backache, headache, and gastric disorders then follow in painful succession. Delirium is usually present, and convulsions may occur. The eruption appears on the third day, and in a few hours spreads over the whole body. The adjacent papules coalesce to form large elevations, which are soon transformed into broad blebs filled with a sero-purulent fluid. The face presents an extremely repugnant appearance. The mucous membranes are also involved. The fauces, pharynx, naso-pharynx, larynx, and tongue become swollen and covered with pustules, and œdema of the glottis may result. The parotid and sublingual glands are likewise affected. The conjunctiva and the cornea suffer, with sometimes ulceration and perforation of the latter. Erysipelas is a frequent complication of this variety of the disease, and extensive sloughing and gangrene often ensue. The temperature, which may reach 107° during the primary fever, falls only slightly or not at all when the eruption appears, and rises higher than ever when suppuration begins. The urine is scanty and loaded with albumen. Delirium is usual, and pneumonia, bronchitis, and pleurisy often occur. The disease may assume a typhoid type, ending with suppression of urine and uræmic poisoning. A few recover after protracted convalescence, but with more or less deformity from the destruction of tissue by suppuration and sloughing.

Variola Maligna.—Variola maligna is characterized by the intensity of its symptoms and the irregularity of their development. The initial chill is very severe, and is followed by violent fever, the temperature rising during the first day to 108° or 110°. The respiration is quick, feeble, and irregular. The pulse is rapid and tremulous, varying from 120 to 170. The face and neck are deeply suffused. The headache and backache are distressingly severe. Vomiting is constant. The urine is scanty or suppressed. The bowels may be loose. Delirium is usually present, but in some cases the patient is apparently comatose. In many cases a scarlatiniform or an erythematous eruption appears on various portions of the body on the second day of the disease. On the third day the characteristic papular eruption appears and rapidly becomes diffused over the entire surface, but the fever does not subside. The papules, which are black or dark-blue in color, increase in size, and become surrounded by hæmorrhagic extravasations, which vary in size from a pin's point to an inch or more. Those which are adjacent coalesce, forming large, irregular masses. The face is swollen and distorted, the conjunctivæ are injected, and the eyelids are turgid with blood. The tongue is thick and coated. The buccal and pharyngeal mucous membrane is covered by a purulent hæmorrhagic exudation, from which a sickening odor emanates. Bronchitis or pneumonia is usual. Hæmorrhage from the stomach or the bowels is not infrequent. The urine is loaded with albumen, and finally becomes dark and bloody. Death generally takes place in this variety of the disease between the third and the eighth day after the development of the initial symptoms. Indeed, some malignant cases end fatally before the appearance of the eruption, in which event the body turns black.

Varioloid.—Varioloid is a mild or benign form of variola, occurring in those whose susceptibility to the action of the disease has been modified by vaccination or by a previous attack of variola. It is ushered in by a slight chill, followed by moderate fever. The characteristic lumbar pain is also present, but not severe. There is also slight headache and nausea. The papular eruption is apt to be a day late, appearing on the evening of the fourth day, rather than on the third, and is accompanied by complete relief from the other symptoms of the disease. The number of papules vary from five or six to a hundred or more. They increase in size, and are converted first into vesicles, then into pustules. Many of the latter become aborted as soon as formed, and the remainder are rarely more than half-filled with pus. The suppurative process is consequently very short, and the secondary fever is absent. There is a slight inflammatory areola around each pustule, but the adjacent skin is not swollen. The mucous membranes may be involved, but only slightly. Desiccation commences from the fifth to the seventh day of the eruption, or the ninth to the eleventh day of the disease, and is usually complete in four or five days. The majority of the pustules dry up without rupturing, and, as there is not much destruction of tissue, there is usually little or no pitting. Convalescence is generally rapid. Some cases are so mild that the patient does not suspect the nature of the disease until informed of it.

Diagnosis.—While it is impossible to make a certain diagnosis of variola before the eruption, the occurrence of high fever, vomiting, and severe lumbar pains, preceded by a chill, are highly significant, and may be considered pathognomonic if the patient has been exposed to the contagion of the disease, or if other cases have previously been observed in the neighborhood. When the eruption is fully developed the diagnosis is comparatively easy. The only diseases with which it could then be confounded are measles, scarlet fever, varicella, typhus fever, and pustular syphilis. The papules of variola bear a superficial resemblance at first to those of measles, but the former become vesicular within twenty-four hours, and then pustular, while the latter remain unchanged. They are also larger than those of variola, and are crescent-shaped. The constitutional symptoms are also widely different. In variola the temperature is high during the initial stage, and falls to nearly normal when the eruption develops. In measles the temperature is only moderately high during the initial stage, and rises rapidly a few hours before the eruption appears, and remains at its maximum height for from twelve to twenty-four hours after the rash is all out. Measles is invariably accompanied by a "watery eye," and other symptoms of coryza. More or less bronchitis is also present. Coryza is absent in variola, and bronchitis occurs only as a complication of the later stages. The malignant form of variola is frequently preceded by an erythematous rash which might be mistaken for that of scarlet fever, but it is less diffused and more irregular in development, and is followed in a few hours by the characteristic papular eruption. The gravity of the constitutional symptoms is also significant.

The vesicles of varicella may resemble those of variola, but they begin as vesicles, and remain as such until they dry up. They appear on the second day of the disease. They are usually developed upon the body and scalp, and are rarely seen upon the face. The accompanying constitutional symptoms are very slight. The eruption of typhus fever is either macular or papular in character. It appears from the fifth to the seventh day of the disease, and is never seen upon the face.

The pustules of syphilis have been mistaken for those of small-pox. Several years ago, a sailor, who was covered from head to foot with pustular lesions, was sent to the Philadelphia Health-Office as a small-pox patient. The attendant physician, recognizing the nature of the malady, immediately procured his admission in the Hospital for Skin and Venereal Diseases. Several other physicians had previously seen the case and pronounced it one of small-pox. Inquiry into the history of the patient, and a consideration of the symptoms presented by him, would have rendered the mistake impossible.

In syphilis a history of infection can usually be obtained, and an examination will reveal some traces of the primary sore or its accompanying bubo. The eruption, moreover, is seldom purely pustular—macules, papules, vesico-pustules, and other lesions usually coexisting in varying numbers. In some rare cases, however, as the one just referred to, it consists solely of pustules identical in appearance with those of variola. The patient may also be weak and feverish, and complain of pain in the back and loins. The elevation of temperature does not exceed one or two degrees, however, and the constitutional symptoms partake more of the nature of general *malaise* than of a violent infectious disease. Further, the pustules in syphilis are chronic in character, often remaining for some time, and are not accompanied, as a rule, by pain or itching. In variola the fever is high, the prostration profound, and the eruption is acute in character, accompanied by intense itching, and disappearing by maturation in from eleven to fourteen days.

Pathology.—The first step in the production of the eruption consists of active congestion of the capillary vessels of a number of the papillæ of the corium. Exudation then takes place into the connective tissue and the rete mucosum, by which the outer layers of the epidermis are elevated and papules formed. As the inflammatory process continues, more fluid oozes out, the epidermic layers are separated from each other and from the corium, and vesicles result. The contents of the vesicles consist at first of pure serum, but in a day or two pus-corpuscles transmigrate, and the former become transformed into pustules. The umbilicated appearance which they present is due to the fact that the epidermis in the centre of each pustule is continuous with the duct of a hair-follicle or a cutaneous gland. The pus does not differ, microscopically, from that of any ordinary inflammation. In variola confluens great numbers of adjacent papillæ become involved. The hæmorrhagic extravasations of the malignant variety are due to rupture of the cutaneous vessels. The dark or purple color which the papules and extravasations sometimes assume is significant of dissolution of the blood. The pustules which form on the mucous membranes may incite general catarrhal, croupous, or diphtheritic inflammation of the regions in which they are found. After death, the liver, spleen, kidneys, and heart are found to be the seat of granular and fatty degeneration. No pustules have ever been observed on the gastric mucous membrane.

Etiology.—Variola occurs at all ages and in all countries. It is produced by a specific poison, the exact nature of which has not yet been discovered. One attack is protective, as a rule, against subsequent outbreaks of the disease, but exceptions occur. Vaccination affords almost complete protection. Variola is highly contagious. It may be communicated by inoculation with the contents of the pustules, but is spread principally by the diffusion through the atmosphere of the emanations from the patient. It is infectious at every stage, from the beginning of the disease until the process of desquamation has been completed, but it is especially dangerous during the period of suppuration, when the secondary fever is at its height. The poison is active and virulent, and retains its power for a long time. Even contact with the bodies of those who have died of the disease may result in its development. The clothing and other articles in contact with the patient become saturated with the poison, and, unless destroyed or thoroughly disinfected, will become the foci for future epidemics.

Treatment.—Diet is of the utmost importance. Milk, milk-toast, eggs, oysters, or beef-juice should be administered regularly every four hours from the beginning of the disease. Lemonade will be found agreeable and cooling, and may be given freely. Cold water or ice-water can be taken without restriction.

The medicinal treatment is mainly symptomatic, as no remedy has yet been discovered by which variola can be aborted or its duration lessened. During the stage of invasion the aim should be to lower the temperature, lessen the arterial tension, allay gastric irritability, and quiet the nervous system. During the stage of suppuration the treatment should be directed not only to meet the foregoing indications, but also to prevent or counteract the development of pyæmic poisoning. The complications that arise at this period must be promptly met, and means taken to prevent or lessen the disfigurement caused by the formation of pits.

In ordinary cases of variola the most efficient treatment consists in the administration of small doses of aconite and morphia during the primary fever, and the same drugs in alternation with quinine and tincture of the chloride of iron during the secondary fever. The bowels should be freely opened, in the beginning of the disease, by a purgative dose of calomel and soda, and one or two passages secured every day afterward by the assistance of saline laxatives. If pharyngitis or other throat symptoms develop, the patient should be directed to use a gargle of chlorate of potassium, ten grains to the ounce, four or five times a day. The bronchitis can be most effectively relieved by a combination of sanguinaria, capsicum, and squills, or other stimulating expectorants, rather than by opiates and depressants. Nervous exaltation can usually be allayed by the bromides and chloral, but in some cases full doses of Dover's powder will be found more efficient. Occasionally it may be necessary to resort to the hypodermic use of morphia. The irritability of the skin is relieved by frequent sponging with cold water. Inunctions of cod-liver oil are also grateful.

Pitting can be reduced to a minimum by keeping the patient in a cool, dark room, and applying tincture of iodine freely to each papule. Each pustule should also be punctured early, and the interior touched with nitrate of silver after the pus has been evacuated. This, however, is a tedious and painful process. Dr. Addinell Hewson, of Philadelphia, insists that better results may be obtained with less pain by covering the affected surface with a thick paste composed of fine clay and water. Weak mercurial plasters are frequently employed for a like purpose. Lotions of carbolic acid or of mercuric bichloride relieve the tension of the skin and lessen the fetor of the discharge. Ulcerations of the cornea should be touched at once with the solid nitrate-of-silver stick. In variola confluens, and in the more severe cases of variola discreta, when the fever remains high, ice-bags may be applied to the head and chest, or the patient placed in a cold bath. When the fever assumes a typhoid type, and the pulse becomes soft and feeble and the mind dull and wandering, full doses of strychnine and digitalis are to be given every four hours, and from ten to fifteen drops of oleum terebinthinæ once in three hours. Camphor, caffeine, carbolic acid, and carbonate of ammonia will also be found serviceable. The diarrhœa which sometimes follows can readily be controlled by dilute sulphuric acid and opium. If petechial spots appear on the surface, or hæmorrhagic extravasations occur, full doses of chloride of iron and strychnine should be given, in alternation with oleum terebinthinæ, every two hours. Alcohol is indispensable in the treatment of all grave cases. If symptoms of pneumonia, pleurisy, or pericarditis appear, a blister should be placed over the affected region, and stimulants freely administered. Gastric and intestinal hæmorrhage can be checked by Monsel's solution, given as required, in from five to ten drop doses, well diluted. Variola maligna usually defies all medication, but occasionally recovery has been effected. The treatment of this variety should begin with free purgation, after which dilute sulphuric acid, strychnine, camphor, carbolic acid, and oleum terebinthinæ are indicated in appropriate doses. Dr. N. S. Davis,* of Chicago, has obtained good results in some desperate cases from a combination of carbolic acid and the hyposulphite of sodium, as in the following formula :

℞	Acidi carbolici	gr. x.
	Sodii hyposulphitis	ʒ vj.
	Aquæ menth. pip	f ℥ iv.

M. Sig. : One teaspoonful in water every one or two hours.

Cases of varioloid do not require much medicine. The administration of a laxative and a diaphoretic mixture during the initial stage, and a chalybeate tonic after the disease is well developed, will usually be sufficient.

Those afflicted with variola should be rigidly isolated, and no one permitted to come near them who is not protected by vaccination or by a previous attack of the disease. The discharges from the patient should be disinfected with common salt, carbolic acid, sulphate of iron, or mercuric bichloride. All clothing and articles used are to be disinfected or destroyed. The room should be thoroughly fumigated with chlorine, iodine, or sulphurous-acid gas, after the patient has been removed from it. The scabs should be carefully collected and burned.

Prognosis.—The prognosis of variola is largely influenced by the age of the patient and the extent of the eruption. The greatest fatality occurs, as a rule, in young children and in old people. Very few who are attacked before the sixth, or after the sixtieth, year, recover. Young adults are more likely to recover.

The prognosis is favorable in all uncomplicated cases of variola discreta. It is also so in cases of variola confluens in which only a few large patches are present ; but when the tendency to coalesce becomes general, the result is doubtful. It has been estimated that, while the mortality in variola discreta varies from 3 to 5 per cent., in variola confluens it exceeds 50 per cent. Variola maligna has a fatal tendency. Varioloid is a benign affection, rarely ending in death.

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* Lectures on the Principles and Practice of Medicine. By N. S. Davis, A. M., M. D., LL. D. Chicago, Jansen, McClurg & Co., 1884.

VARICELLA.

SYNONYM.—Chicken-pox.

Varicella is a mild, contagious, febrile affection, characterized by the development of a vesicular eruption on the general surface of the body.

Symptoms.—Varicella is a disease of infancy and early childhood, seldom seen after the tenth year of age. The chief symptom, and that which usually first attracts attention, is the appearance of a vesicular rash after a premonitory fever of twenty-four or thirty-six hours' duration. The fever rarely rises above 101°, and in some cases is so slight as to escape notice altogether. The pulse is usually increased in frequency, and there may be some headache and restlessness. The vesicles appear first on the chest and abdomen, and then rapidly extend to the extremities. In some cases they may be observed on the forehead, scalp, and neck, and on the conjunctiva and the roof of the mouth, but they seldom ever appear upon the lower part of the face. They are circular in shape, and vary in size from a pin's head to a large pea. The first step in their formation consists of the appearance of a number of rose-colored spots, on which vesicles develop after a few hours. They contain a clear, serous or yellowish fluid. They are all out upon the surface and attain their full size on the second day. On the following one they begin to maturate or dry up, forming small brown or yellowish crusts, which drop off in two or three days. A small cicatrix is left at the site of each, but, as the corium is not involved, it usually disappears after a time. The fever subsides when maturation commences, and the whole course of the disease is terminated within a week.

Diagnosis.—Varicella might be confounded with varioloid or with measles. In varioloid, however, the eruption is first papular, then vesicular, then pustular. It appears on the third day of the primary fever, and may be limited to the face, where it is usually first observed. In measles, the eruption is seen first on the face on the fourth day of a severe fever, but it is coarsely papular in character, and accompanied by marked coryza and bronchitis. In varicella, on the other hand, it appears on the first or second day of a mild fever; rarely upon the face, and is never papular or pustular.

Pathology.—The rose-colored spots which precede the development of the vesicles are due to active congestion of the capillary vessels of isolated cutaneous papillæ. As the morbid process continues, an exudation of serum occurs which, penetrating between the layers of the epidermis, separates them, and results in the formation of a vesicle.

Etiology.—Varicella may occur sporadically or as an epidemic. It is propagated by contagion, and is evidently due to a specific poison, but neither the nature of the poison nor the exact method of its communication is known.

Treatment.—If the fever and headache become severe, from one eighth to one fourth of a minim of the tincture of aconite, or half a minim of the tincture of gelsemium, may be given in sirup and water every three hours, and a saline laxative administered.

The majority of cases, however, require no other treatment than rest and a mild diet. The patient should be kept indoors for a few days, and restricted to a diet of bread and milk and fruit.

Prognosis.—The prognosis is uniformly favorable. Only two or three deaths from varicella have ever been recorded, and being debilitated children, they were probably dying from inanition when the disease appeared.

VACCINIA.

Synonym.—Cow-pox.

Vaccinia is a specific, contagious, eruptive disease, attacking cattle, and which, when transmitted to man by inoculation, so modifies the entire system as to render it insusceptible for a long time to the poison of variola. The process of inoculation is termed vaccination.

All children should be vaccinated during the first six months of infantile life, and revaccination performed about the eighth year of age, and then again at puberty. If the vaccination takes properly at each of these periods, further repetition will be unnecessary. Statistics show that while varioloid may occur in 7 per cent. of those who have been vaccinated once, it is rarely seen in those who have been vaccinated twice, and never observed in those who have undergone it three times.

Either bovine or humanized virus may be employed, but, in using the latter, care must be taken to select only that which has been obtained from healthy persons, uncontaminated by syphilis or scrofula.

In performing the operation, almost any part of the integument may be used. The arm or leg is generally selected and scarified longitudinally and transversely over an inch of the surface. The scarification should be made lightly, so that it will merely bring the blood to the surface, and not cause it to ooze out in drops. If the vaccine matter is in a liquid condition, it can then be placed on the surface. If quills or points are employed, they should be dipped in water and then rubbed freely into the selected spot. If a scab is used, it may be dissolved in a few drops of water or glycerine, and then applied on the wounded spot.

Symptoms.—If the vaccination has been properly performed, and pure vaccine matter employed, a hard, red papule will appear at the site of inoculation on the third or fourth day. This papule will increase in size, and become vesicular on the fifth or sixth. The vesicle is umbilicated, is surrounded by a red areola, which increases in size. On the eighth or ninth day it is converted into a pustule, which reaches its full development on the tenth or eleventh. The areola then begins to fade, a dark-brown spot appears in the centre, the contents dry up, and a dark-brown or mahogany-colored scab is formed by the fourteenth or sixteenth day. Cicatrization continues beneath until about the twenty-first or twenty-third. The scab then falls off, leaving a circular, depressed, reddish cicatrix, which usually remains through life, but gradually becomes whiter than the adjoining skin.

The constitutional symptoms accompanying true vaccination consist of slight fever, headache, and restlessness during the evolution of the eruption. In some cases the axillary glands become swollen and painful. In other cases a diffused scarlatiniform, or papular, or papulo-vesicular eruption may appear over the whole body. These, however, are only of brief duration, and usually disappear within a few days.

Vaccination with impure matter may entail the most serious consequences. The eruption produced by improper virus does not pursue the typical course of true vaccination. The areola appears early, and is large and irregular in outline. The papules appear earlier, also, and change rapidly into vesicles and pustules, which are not umbilicated, and either dry up early, forming a thick, black scab, or extend into large suppurating ulcers, which spread widely and deeply, and manifest no disposition to heal. Erysipelas not infrequently occurs as a complication. Boils and abscesses may also form, and run a tedious and painful course. Some individuals appear to be insusceptible to the action of vaccination. It is probable they are also at that time insusceptible to the poison of variola, but, as that peculiarity of the constitution may be modified by time or other circumstances, repeated efforts should be made to induce the mild disease in them. I recollect several cases in which six or seven vaccinations failed, but a later one proved successful.

The cutaneous symptoms of other eruptive fevers may be briefly described as follows :

Typhoid Fever.—In typhoid fever the eruption appears about the seventh day, but may be delayed until the tenth or twelfth. It consists of a few small pale-red or rose-colored spots, which are not at all or only slightly elevated above the surrounding surface. They are circular or oval in shape, and disappear upon pressure, returning as soon as it is removed. These spots are usually developed only on the chest and abdomen, but in some cases they may be observed upon the back.

They are never found upon the face or the extremities. They vary in number from one to twenty-five or more. Each one remains visible for three or four days. It then fades, and another is developed near the site of the first. Successive spots appear and disappear in this manner for a week or more. They then disappear without either pigmentation or desquamation, but return if a relapse occurs.

TYPHUS FEVER.—In typhus fever the eruption appears from the fifth to the seventh day of the disease. It consists of numerous coarse dark-red spots or papules, which are elevated above the surrounding healthy skin, and are not influenced by pressure. They are abundantly developed upon the trunk and the extremities, but never appear upon the face. In some cases of typhus the spots turn purple or become surrounded by black petechiæ. Dark or purple linear and irregular hæmorrhagic extravasations may also occur.

The eruption attains its maximum development in twenty-four or forty-eight hours, and remains permanent until the fourteenth or fifteenth day, when it slowly fades as convalescence begins. If the disease ends fatally before that time, the eruption remains after death.

CEREBRO-SPINAL FEVER.—In cerebro-spinal or spotted fever the eruption usually appears, if at all, within the first twenty-four hours, but it may not develop until the third day. It consists of purpurous or cherry-colored spots, which are elevated, and do not disappear upon pressure. They are found upon all portions of the body except the face. They vary in number with the severity of the attack. They disappear with convalescence, but remain on the surface in cases which result fatally.

DIPHTHERITIC SPOTS.—Severe cases of diphtheria are sometimes complicated by an eruption resembling that of cerebro-spinal fever. It may appear at any time after the third day. It consists of dark-red or cherry-colored spots, which are not influenced by pressure. They are not elevated, however, and are usually few in number and limited to the face and chest. Diphtheria may also be accompanied by an erythematous rash similar to that of scarlatina. It is not as vivid, however, as the scarlatinal efflorescence, and never extends beyond the neck and breast.

ERYSIPELAS.

SYNONYMS.—The rose—St. Anthony's fire.

Erysipelas is an acute specific, eruptive, febrile disease, characterized by an intense inflammation of a limited area of the skin or mucous membranes, accompanied by various constitutional phenomena, and terminating in desquamation of the affected portion of the epidermis. It is feebly contagious in character.

Symptoms.—Erysipelas usually begins abruptly with a slight chill, or an attack of nausea and vomiting. This is followed in a few hours by high fever, and more or less headache and pain in the back and limbs. The tongue becomes coated with a thick white or yellowish fur, the skin is dry and hot, the urine is scanty and high-colored, and the bowels are torpid. The pulse is rapid and forcible, varying from 100 to 130. The temperature ranges from 102° to 104°. There is intense thirst, but no desire for food.

The eruption usually appears within the first twenty-four or thirty-six hours. It consists of a circumscribed deep-red or rose-colored spot which generally appears first upon the nose, cheek, ear, or scalp. It may, however, develop upon any portion of the cutaneous or mucous surfaces. In some cases it is first observed upon the fauces, in others the vulva. It disappears on pressure, but returns as soon as the pressure is removed. It is preceded or accompanied by a sensation of heat and tension, and more or less tingling or pain. There is also intense itching, and the surface is glossy and swollen. The eruption and tumefaction rapidly spread in all directions. If the face or scalp is involved, the features become distorted, to such an extent that they can scarcely be recognized. The lips are stiff and tumid, the nose, cheeks, and scalp are infiltrated and swollen, and the eyelids can not be separated. In severe cases large vesicles or blisters filled with serum are developed upon the affected surface. In grave cases the vesicles become black or purple from an extravasation of blood.

The eruption reaches its maximum development in about three days. It then ceases to spread, and gradually loses its vivid-red appearance, assuming a yellowish hue. The swelling also subsides, the vesicles shrivel up, and the febrile and other symptoms disappear. Convalescence is established about the eighth or ninth day. Moderate desquamation of the epidermis then takes place, and in some cases the hair falls out, but a new growth is soon developed.

Various complications are observed during an attack of erysipelas. The cervical and axillary glands are frequently enlarged. Delirium may be caused by the height of the temperature, or from embolism of the cerebral capillaries. The urine may become loaded with albumen, or it may be completely suppressed, and uræmic poisoning ensue. Endocarditis, pneumonia, and pleurisy have also been noticed.

In the phlegmonous variety of erysipelas the areolar tissue is extensively infiltrated with serum; suppuration occurs, and much destruction of tissue results. In gangrenous erysipelas the surface turns black, large sloughs are formed, and the patient dies from pyæmia. In erysipelas of the fauces the tongue, pharynx, and larynx are swollen, and death may suddenly ensue from œdema of the air-passages.

Erysipelas ambulans is a semi-chronic variety of the disease in which the eruption recurs from time to time, but always upon a different region of the body from that which was previously attacked.

Diagnosis.—The diagnosis of erysipelas is easy. The only affections which present any resemblance to it are erythema and eczema. In erythema, however, there is neither fever nor pain, and little or no swelling. The eruption usually appears upon the trunk or extremities, and consists of several large spots or blotches, which are not circumscribed, but fade imperceptibly into the surrounding normal skin. In eczema the surface is fiery red and burning, and covered either with minute vesicles or fine scales; but there are no constitutional symptoms. Erysipelas of the fauces* or pharynx might be mistaken for an ordinary irritative inflammation of those structures. The diagnosis can readily be made, however, by contrasting the dusky-red color, the rapid development, the migratory tendency and the constitutional symptoms of erysipelas, with the bright-redness, the restricted development, and the comparatively mild nature of ordinary inflammations of the pharyngeal or buccal cavity.

Pathology.—The first step in the morbid process consists of active hyperæmia of the blood-vessels of the affected surface. Exudation of serum, and migration of the white corpuscles then occur. All the layers of the skin become œdematous, and infiltrated with serum and masses of leucocytes. Vesicles are formed by an accumulation of fluid between the layers of the epidermis and between the epidermis and the corium. In severe cases rupture of isolated capillaries may follow. The blood is thinner and darker than normal. The heart, kidneys, liver, and spleen undergo more or less granular degeneration. Embolism of the cerebral vessels sometimes happens.

Etiology.—Erysipelas may develop at any age, but it is most frequently met with from the twentieth to the fiftieth year. It is not limited to any season, but is most prevalent during the spring and autumn months. One attack predisposes the individual to others.

It is probable there are two forms of erysipelas—contagious and non-contagious. The former is produced by a specific poison, and is propagated by individual contact as well as by atmospheric diffusion. It usually prevails in epidemics of varying extent and severity, but isolated cases are not uncommon. The non-contagious variety of erysipelas may be produced by a blow, or by exposure to cold or damp weather, or by reflex irritation from alcoholic indulgence or other causes, and may be regarded as a diffused dermatitis.

Treatment.—The most effective treatment of idiopathic erysipelas in young and robust adults consists in the hypodermatic administration of from one sixth to one fourth of a grain of pilocarpine hydrochlorate. It produces profuse diaphoresis, during which the pulse and temperature fall to almost normal, the eruption becomes pale, the tumefaction diminishes, and the further progress of the disease is checked. In cases where hypodermatic injections are not deemed advisable, pilocarpine or jaborandi may be given by the mouth. Neither of these remedies should be ordered, however, to anæmic or debilitated subjects, as serious cardiac depression might result. In such cases some other plan of treatment is preferable. The administration four times daily of a pill containing three grains of the sulphate of quinine and one twelfth of a grain of the extract of belladonna has been recommended, and is often followed with good effect. A combination of aconite, ♏ij, and carbolic acid, ♏ss, every four hours, has also produced excellent results, but is not suitable for asthenic cases. Some patients require to be stimulated from the beginning, and will not tolerate the employment of aconite, pilocarpine, or any other cardiac depressant. The pulse should be the guide, and aconite or belladonna employed in accordance with its indications. These agents, however, have no direct influence on the course of the contagious variety of the disease, and can only be regarded as adjuvants in its treatment. The tincture of the chloride of iron, however, is almost a specific in both varieties of the disease. It acts equally well in the sthenic and in the asthenic forms. It should be taken in large doses, one half to one or two drachms, every three hours until convalescence is established. The bowels should also be freely opened by a calomel or calomel-and-jalap purge, followed by a saline. Rest in bed in a dark room is also essential.

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* Erysipelas of the Upper Air-Passages. By William Porter, M. D. New England Medical Monthly, December, 1886.

In severe cases, characterized by high fever, bounding pulse, and throbbing carotids, ice-bags should be applied to the head and face, and full doses of aconite or veratrum viride administered every hour until some relief is obtained. If there be fierce delirium and high fever, the same measures may be resorted to; but if the delirium is low and muttering, and evidently due to suppression of urine, one or two drops of croton oil or an eighth of a grain of elaterium should be placed on the back of the tongue, or sufficient pilocarpine injected hypodermatically to produce profuse diaphoresis. If symptoms of embolism supervene, I advise the free use of carbonate of ammonia and the alkalies. In phlegmonous erysipelas, quinine, iron, belladonna, and stimulants are the remedies to be relied upon. In the gangrenous variety, camphor, strychnine, the mineral acids, and oil of turpentine may be resorted to. In malarial erysipelas large doses of quinine are necessary.

It has been said that external applications in erysipelas are useless, and, when ordered, are only of the nature of placebos. This is a grievous mistake. The itching and burning demand relief; and, if it is not obtained, the patient tears his skin with his fingers, and becomes at times almost frantic. Various preparations have been recommended for external use in erysipelas, but the majority are useless, and many are injurious. Tincture of iodine, mercurial ointments, and solutions of nitrate of silver and carbolic acid can be employed, but they are all more or less painful and often inefficient. The ointment of the oleate of bismuth, on the other hand, is an elegant and effective application which can be depended upon to allay the itching and burning, and lessen the pain and nervous irritability. The ointments of carbonate of lead and boracic acid are also valuable. Another useful but not so elegant an application is the earth-dressing of Dr. Addinell Hewson. This dressing consists of a thick paste of clay and water. It relieves the pain and burning almost instantly, lessens the fever and swelling, and in many cases exercises an abortive effect upon the disease. Sir Dyce Duckworth recommends a thick chalk-ointment.*

Prognosis.—Uncomplicated idiopathic cases of erysipelas invariably terminate favorably. The occurrence of delirium indicates a grave case, but not necessarily a fatal one. Œdema of the air-passages and embolism of the cerebral vessels are seldom followed by recovery. Pneumonia, pleurisy, and endocarditis are unfavorable complications. Pyæmic and uræmic cases usually die. Phlegmonous cases pursue a tedious course, and present a high death-rate. Gangrenous erysipelas is generally fatal. Alcoholic subjects are unfavorable cases.

CHANCROID.

Synonyms.—Soft chancre, non-infecting chancre—Chancroïde—Schanker.

Chancroid is a localized virulent, contagious, specific venereal disease, characterized by the formation of one or more peculiar ulcers upon the cutaneous or mucous surfaces, accompanied by inflammation of the adjacent lymphatic glands, but not followed by any other symptoms of constitutional infection.

Symptoms.—The lesions of chancroid may occur upon any portion of the body, but they are most frequently observed on the genital organs. The glans and prepuce in the male, and the fourchette, labia majora, labia minora, and the lower part of the vagina in the female, are especially liable to be involved. The body of the penis and the urethra and scrotum in the male, and the uterus, urethra, perinæum, and anus of the female, may also be affected. Chancroid of the fingers has occurred in gynæcologists and accoucheurs as a result of infection through a cut or an abrasion while making a vaginal examination.

Chancroid has no period of incubation. The morbid process begins as soon as its essential virus is absorbed. If a drop of chancroidal pus be inserted beneath the epidermis, the point of insertion will be surrounded in a few hours by a faint reddish blush, which gradually increases in size and distinctness until the second day, when it appears as a well-marked inflammatory areola. A vesicle is then developed at the point of inoculation, and becomes converted into a pustule, which usually breaks spontaneously in a few days. The resulting ulcer is a typical chancroid, which does not differ in appearance or course from those which result from impure sexual intercourse.

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* Practitioner, January, 1887.

The interval of several days which sometimes elapses between exposure to contagion and the appearance of the lesion, is due to the fact that no abrasion of the surface occurred, and that absorption consequently could not take place until the acrid virus had corroded away the outer layers of the epidermis or insinuated itself through the follicles into the interstitial spaces of the rete mucosum. Absorption is rarely delayed longer than a week, however; and, if an abrasion exists, well-marked symptoms may develop within a few hours. It has been estimated that in twenty-five per cent. of cases the lesions appear within two days; in twenty-five per cent. more, within four days; in thirty per cent. more, within six days; and in the remaining twenty per cent. at various times, from a week to twelve days.

Usually, within two or three days after infection, the characteristic lesion of chancroid becomes manifest. It consists of a sharply-defined round, oval, or irregular ulcer, with abrupt, perpendicular, or sloping edges. Its base at first is red and smooth, but soon becomes irregular and granulated, and covered with a gray or yellowish-white pultaceous material, consisting principally of pus. It is surrounded by an inflammatory non-indurated areola, and is continually secreting more or less thick white or yellowish pus, which may or may not be tinged with blood. If no treatment be instituted, the ulcer gradually increases in size for one or two weeks, frequently attaining a diameter of half an inch. In mild cases, a process of spontaneous repair may then begin. The inflammatory areola disappears; the secretion becomes altered in character, and finally ceases; healthy granulations spring up, and, if the destruction of tissue has not been too great, the healing process will be completed without the formation of a permanent cicatrice.

In severe cases, the ulceration continues to extend in all directions until a large area of the surface is involved. It then tends to assume a chronic character, and is subject to various modifications. In malignant or phagedænic chancroid the ulceration spreads deeply and widely, producing intense pain and great destruction of tissue. In some cases the rapidity and severity of this process are so excessive as to result in the sloughing of the glans penis, and destruction of the scrotum in a few days. In the female it is frequently productive of frightful and loathsome deformities.

Chancroidal ulcers may be single, but, as a rule, they are multiple. Owing to the auto-inoculability of their secretions, as well as to the fact that several abraded points may be infected at the same time, there is no limit to the number which may be present. I have seen a patient who had thirty-seven distinct chancroids, and instances are recorded in which a still greater number were observed.

All chancroidal ulcers are accompanied by more or less inflammation and infiltration of the surrounding tissues. In some cases the entire penis is enormously swollen; in others the infiltration is limited to the prepuce or the glans penis, producing phimosis or paraphimosis.

The most frequent complication of chancroid is bubo, or inflammation of the neighboring lymphatic glands. At times the lymphatic vessels leading to the glands also become red, inflamed, and hardened, and can be felt like hard cords beneath the skin. When it assumes this phase it is a genuine lymphangitis, which may eventuate in suppuration and the formation of small abscesses along the course of the inflamed lymphatics. It usually, however, terminates in resolution in a few days.

A bubo pursues a more prolonged course. Its presence is announced by swelling of the affected gland, and a sense of tenderness or pain upon motion. Buboes may occur upon any region of the body, but, as their exciting cause generally exists upon the genital organs, they are usually found in the groin. They develop during the first few days of the existence of the chancroid. They vary in size from a hazel-nut to a small cocoanut, in accordance with the number of glands involved, the intensity of the morbid process, and the state of the patient's constitution. They also vary in duration and termination. In mild cases there is no pain, but merely a sensation of discomfort, which passes away in a few days, and the swelling which is only moderate disappears in two or three weeks without suppuration. In severe cases the glands increase largely in size, and become intensely painful. The overlying integument is red and tender, and suppuration progresses so rapidly that fluctuation can be perceived in five or six days from the commencement of the swelling. The pain increases with the formation of pus until the bubo is opened or spontaneous evacuation of its contents occurs. The cavity of the ulcer which is exposed is similar to the chancroidal ulcer from which it originates. It secretes the same virulent pus, and is subject to the phagedænic and other complications of chancroid. If left untreated it may become chronic in character, and involve a large area of surface. Usually, however, the character of its secretion gradually changes, healthy granulations spring up, and a cure is finally effected by cicatrization.

Diagnosis.—The diagnosis of chancroid is frequently difficult. The principal affections with which it may be confounded are chancre, herpes, eczema, epithelioma, and innocent erosions or abrasions occasioned by sexual intercourse. Chancroidal ulcers are painful to the touch, rapid in development, and have no marked period of incubation. They are usually multiple, their secretion is copious, purulent, and auto-inoculable; their base is not indurated, and they rarely involve more than one lymphatic gland at a time. Chancre, on the contrary, is slow in development, painless to the touch, and has a well-marked period of incubation. It is usually single, its secretion is thin, sanious, and not auto-inoculable. Its base is indurated, and it involves a chain of lymphatic glands, which rarely suppurate. The subsequent history of the case is also different. It must not be forgotten, however, that it is possible for the same lesion to contain the poison of both chancroid and chancre, and that while the rapid development of the symptoms of the former may obscure those of the latter for a time they will not prevent their final appearance. Consequently, a patient who is suffering from chancroid should not be assured that he has not contracted syphilis until the ordinary incubative period of that disease has elapsed without the development of its characteristic symptoms.

Herpes may usually be distinguished from chancroid by the presence of the minute vesicles of the former disease, the severity of the local irritation, the history of former similar eruptions, and the absence of progressive ulceration and glandular involvement. Eczema is attended by excessive itching and irritation, but is devoid of ulceration. In epithelioma the secretion is either absent, as in the early stages, or thin, sanious, and fetid, as in the later stages. The knobbed, wart-like, or cauliflower appearance, and painful character of the growth is also significant.

Simple erosions or abrasions of the glans, or of the prepuce, or of the body of the penis are of frequent occurrence, and may be mistaken for commencing chancroids. They are bright-red in color, and often cover a large area, and are at times the seat of a serous discharge. They do not extend in depth, however, and, if not irritated, will invariably disappear in a few days.

Balanitis has been mistaken for chancroid, but that error can readily be avoided. In balanitis the greater portion of the glans is involved, and the discharge is thick and purulent, but there is no inguinal involvement, no destruction of tissue, and all the symptoms rapidly disappear under appropriate treatment. The ulcerations of tertiary syphilis present a striking resemblance to those of chancroid. Their edges, however, are more indurated, their history is different, their course is slower, their secretion is not auto-inoculable, and they are not accompanied by the formation of buboes.

Pathology.—The pathological conditions which are present in chancroid do not appear to differ in any respect from those which occur in ordinary ulcerative processes. The floor of the ulcer, which is formed by the corium, is destitute of papillæ, and is uneven and covered with pus-cells. The rete mucosum and the papillary layer of the margins of the ulcer are œdematous, and infiltrated with cells. The underlying corium is also thickened and infiltrated. The vessels of the corium are dilated and tortuous, and their walls are swollen and surrounded by a network of new fibrous tissue.

Etiology.—Chancroid is due to the absorption of the peculiar virus of another chancroid. The poisonous principle resides chiefly in the pus-corpuscles of the chancroidal secretion. It is conveyed exclusively by contagion, which may, however, be mediate or immediate. There have been instances, as before remarked, where it has been contracted by accoucheurs or gynæcologists while making a vaginal examination, but in the main it is due entirely to impure sexual intercourse.

Treatment.—The prophylactic treatment of chancroid is of the first importance. The parts should be thoroughly cleansed with soap and water immediately after a suspicious intercourse, in order to remove any poisonous material that may be hidden in the folds or furrows of the skin. If any abrasions be noticed, a physician should be consulted at once.

After a chancroid has developed, the most effective treatment consists in cauterizing the entire affected surface. By this means all danger of further contagion is averted, and the specific ulcer is changed into an ordinary simple sore. Any active caustic may be used for this purpose, but those which are most frequently employed are the galvano-cautery, the actual cautery, nitric acid, and sulphuric acid. The galvano and the actual cauteries possess the advantage of being only momentarily painful; their action can also be easily restricted to the affected spot. Acids will sometimes diffuse over a portion of healthy tissue in spite of every precaution. The caustic alkalies are still more diffusive and very painful.

No matter what agent may be employed, care must be taken to thoroughly cauterize every portion of the sores, for if any of the virus be left undestroyed it will speedily multiply and invade fresh areas of the surface.

After the chancroid has been thus effectually treated, it should be covered with powdered bismuth, or zinc-ointment, or any non-irritating application, and permitted to heal by granulation.

If nitric or sulphuric acid be used, a solution of cocaine, creasote, or dilute carbolic acid may be first applied to the surface in order to lessen the pain produced by the cauterizing acid.

If severe or erysipelatous inflammation develop, the affected part should be elevated and kept moist and cool by the application of cold water or lead-water and laudanum.

If phagedænic ulceration occurs, all sinuses and fistulæ must be laid open, all sloughs cut away, all pus removed from the surface, and unsparing cauterization promptly resorted to. If the pain be severe and the constitutional excitement high, morphia and aconite are to be administered, in sufficient quantity to allay pain, and to moderate nervous and arterial tension.

The formation of a bubo can not be prevented, but judicious treatment will frequently promote its resolution or prevent suppuration. As soon as the inguinal glands become enlarged or tender, the patient should be sent to bed, a saline cathartic administered, and tincture of iodine painted freely over the skin of the affected region. If the gland continues to enlarge and the pain to increase after this treatment has been persevered in for twenty-four hours, another saline cathartic may be administered, and a bag of ice applied at short intervals to the swollen gland. If there be no pain or inflammatory symptoms, but merely a progressive increase in the size of the bubo, constant pressure, as from a bag of shot, or a disc of metal, held in place by a spica bandage, will be the most effective remedial measure.

If suppuration ensues, the bubo must be opened as soon as fluctuation is perceived, and its contents thoroughly evacuated. Its interior surface should then be thoroughly cauterized, and afterward dressed with an emollient ointment, and permitted to heal by granulation. Tonics and stimulants must be given whenever indicated.

Phimosis and paraphimosis may be relieved in accordance with the methods appropriate to each individual case.

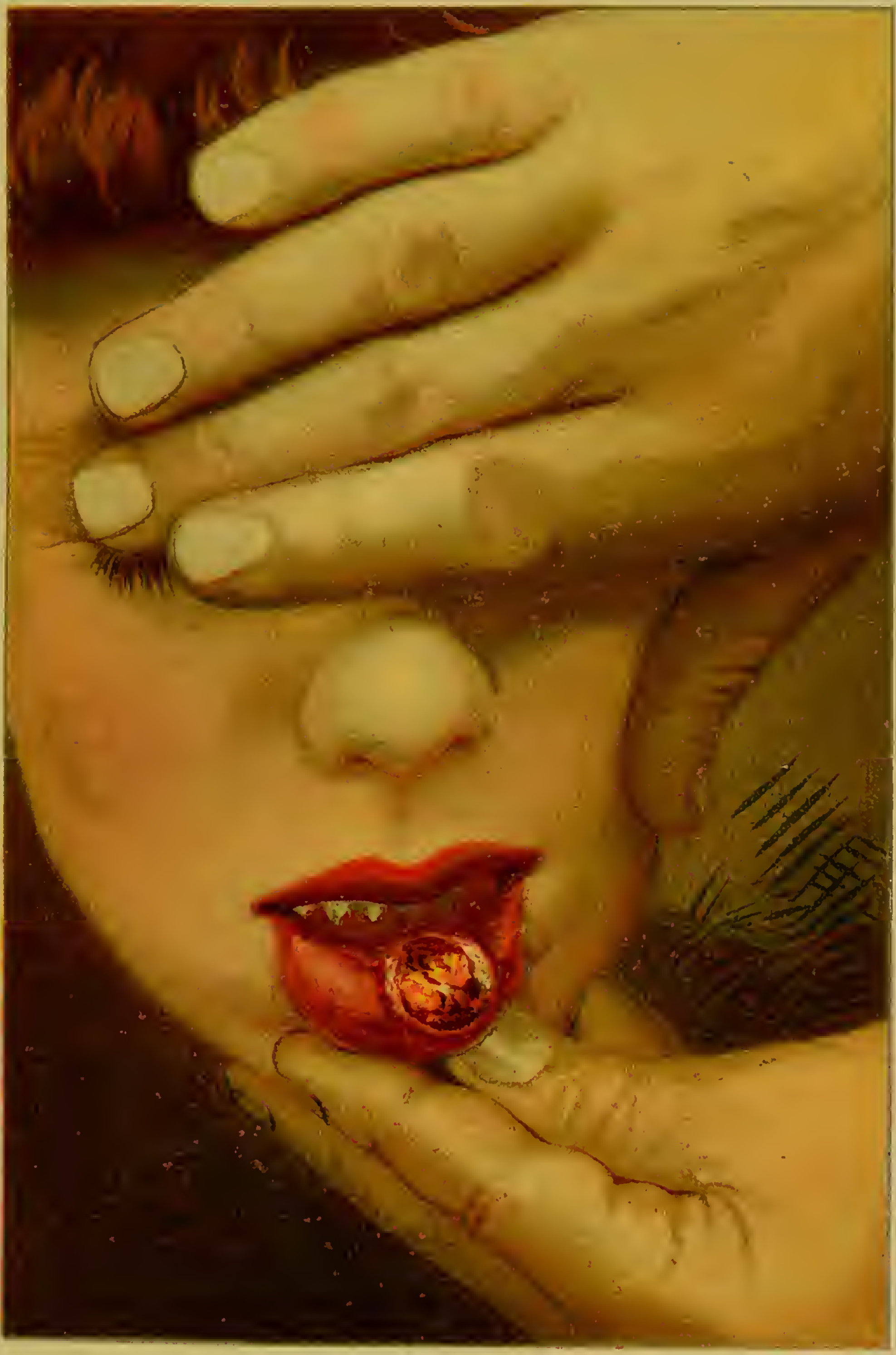
Prognosis.—The prognosis of chancroid is always favorable so far as danger to life is concerned, but it occasionally pursues a tedious course, and may result in the production of permanent cicatrices or other deformities.

SYPHILIS.

Syphilis is a virulent, chronic, contagious, systemic disease produced by the absorption or inoculation of a specific virus, and manifesting itself primarily by the development of an infectious lesion at the point of inoculation or absorption, accompanied by an involvement of the adjacent lymphatic glands, and followed by a series of morbid manifestations which first involve the skin and mucous membranes, and finally extend to all the organs and tissues of the body.

Symptoms.—There are four more or less well-marked stages of syphilis: the primary, in which the force of the disease appears to be concentrated at the point of infection and in the contiguous lymphatic glands; the secondary, in which the cutaneous and mucous surfaces are mainly involved; the tertiary, in which the osseous, cartilaginous, muscular, and fibrous tissues are invaded; and the quaternary, in which the nervous system and the viscera are profoundly affected.

Plate I.



From Nature—Chancre of the Lip.

Primary Syphilis.—After a period of incubation, which varies from ten days to several weeks, the presence of the virus of syphilis in the circulation is announced by the development at the point of infection of the characteristic initial lesion of the disease. This lesion, which is ordinarily known as "a chancre," is generally situated upon the genital organs, but may appear upon any portion of the body which has been exposed to contagion. Plate I is an accurate representation of a chancre of the lip, in a case occurring recently in my practice, in which the infection was believed to have been communicated by kissing. Chancre usually consists at first of a small round or oval abrasion of the skin or mucous membrane, which varies in size from a pin's head to a three-cent piece. It is almost invariably single. Its base is slightly depressed, dark red in color and indurated, especially in men. The induration is sometimes less in women,* and in some cases entirely absent. This primary lesion is not surrounded by an areola, and rarely suppurates unless irritated. Its secretion, which is thin, serous, and scanty, is highly contagious, but not auto-inoculable. If ulceration occurs the secretion becomes sero-purulent in character, and the base of the ulcer is covered with a layer of gray or dirty-white aplastic lymph.

In the Hunterian variety of chancre the ulcer is deep and funnel-shaped, its edges are sloping and indurated, its base is hard and covered with lymph, and the lesion in its entirety feels to the touch like a split pea set into the skin. Another variety of chancre is that which appears as an elevated indurated papule, which may or may not become excoriated or ulcerated.

Chancre, as a rule, is not accompanied by pain or any other subjective symptoms, and usually disappears in a few weeks without either cicatrization or pigmentation. In some cases the lesion becomes attacked by phagedænic ulceration or by gangrene, but these complications are extremely rare.

Syphilitic bubo, or enlargement of the adjacent lymphatic glands, is a constant accompaniment of chancre, and usually occurs contemporaneously with the development of that lesion. It may exhibit itself upon any portion of the body where lymphatic glands exist, but is usually observed in the inguinal regions. It involves a group or cluster of glands, which become indurated and swollen, and rarely suppurate. They vary in size from a small marble to a walnut. They are freely movable under the skin, and are not painful to the touch. They reach their maximum development in from two to four weeks, and after remaining stationary for several months gradually return to their normal size and condition.

Diagnosis.—The diagnosis of primary syphilis is not usually attended with much difficulty. The principal affections with which it is liable to be confounded are chancroid, herpes, and simple erosions of the cutaneous or mucous surfaces. Chancroid, however, usually begins as an angry-looking ulcer, which has no period of incubation, and is rapid in progress and attended by a high degree of inflammation. Its edges are abrupt and non-indurated, and its secretion is copious, purulent, and auto-inoculable. It is usually multiple, and more or less painful. Finally, its accompanying bubo is extremely painful and highly inflammatory in character, tending to suppuration, and, with rare exceptions, is limited to a single gland. Chancre has a well-marked period of incubation, and usually begins as an apparently insignificant erosion, which is slow in progress and attended by a low degree of inflammation. Its edges are sloping and indurated, and its secretion is thin, scanty, and not auto-inoculable. As a rule it is single and painless, and finally its accompanying bubo is composed of a number of glands which become hard and swollen, but are not painful and rarely suppurate. In herpes there is generally a history of previous similar eruptions, and the lesions disappear in a few days without producing any glandular involvement. Accidental simple abrasions frequently can not be distinguished in appearance from the erosive form of chancre. They may be observed immediately after intercourse, however, and heal kindly in two or three days under the protective covering of a layer of bismuth subnitrate, zinc oxide, or some similar non-irritating application. If the intercourse has been of a suspicious nature, however, it must be remembered that there is a possibility of inoculation having occurred at the point of erosion, and consequently a decided opinion should not be given until sufficient time has elapsed without the appearance of any other symptoms.

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* W. E. Cant, F. R. C. S., in a report on clinical observations on "Induration, in the Primary Lesions of Syphilis in Women." British Medical Journal, February 12, 1887.

LATER SYPHILIS.—In secondary syphilis the cutaneous and mucous membranes are principally affected, but iritis, orchitis, and other complications may develop. In tertiary syphilis the deeper tissues of the body are involved, but lesions of the skin and mucous membranes may also be present. In quaternary syphilis the cerebro-spinal system and the internal organs are the subject of the disease. The line between these varieties is not always well marked, however. Some of the eruptive symptoms belonging to the secondary group may be delayed until the tertiary stage, while occasionally grave nervous symptoms appear early in the course of the disease.

The development of the symptoms of secondary syphilis is usually preceded by marked constitutional derangement. The appetite is impaired, the bowels are constipated, the urine is scanty and high-colored, and there is a sensation of general *malaise*. The patient is irritable and despondent, as if from a foreknowledge of impending illness. There is pain in the bones and around the joints, especially at night, and glandular swellings occur in various portions of the body. Headache and vertigo are not uncommon. More or less feverishness may be present. In some cases the fever is periodical in character, and erroneously assumed to be of malarial origin.

After these premonitory symptoms have existed in varying intensity for several days, any doubt that may have been entertained as to their nature is dispelled by the appearance of one or more of the characteristic syphilitic eruptions, or syphilides.

All the syphilides possess certain general features which are peculiar to them as a class, and serve to distinguish them from the ordinary non-venereal cutaneous eruptions. The most important of these characteristics are the color and course of the eruption, the polymorphism of the lesions, the character of the ulceration, the color of the crusts and scales, and the absence or insignificance of the subjective symptoms.

Color.—Their color varies with the size and situation of the lesions. The small macules and papules are usually bright red at first, but gradually acquire a dark-red or coppery hue. The large papules and tubercles present the characteristic raw-ham or copper-colored appearance from the beginning. As the lesions disappear this hue fades and changes into brown, yellow, or dark-gray. In some cases the normal pigment of the skin is destroyed or absorbed, and large white patches, resembling those of vitiligo, are formed. All the syphilides develop slowly, pursue a tedious course, and manifest a marked tendency to recur.

Polymorphism.—Polymorphism, or the tendency of several forms of lesions to appear at the same time, is especially characteristic of the earlier syphilides, but it is also a feature of the later eruptions. A macular eruption is occasionally complicated by the development of papules. Papules, vesicles, and vesico-pustules may frequently be observed to be commingled, while in other cases tubercles, pustules, and ulcers are often present at the same time.

Scales.—The scales are usually few in number, and white or transparent in color. They are thin, friable, and easily detached. They are developed over the centre of the lesion, and rarely extend to the periphery.

Crusts.—The crusts or scabs are brown, dark-green, or black in color, and are firmly adherent at the periphery to the subjacent tissues. They are thickest in the centre, and frequently present a conical, vaulted, or laminated appearance.

Ulcerations.—The ulcerations of late syphilis are apparently causeless in origin, and usually painless in character and protracted in duration.

Subjective Symptoms.—The syphilides, as a rule, are not accompanied by any subjective symptoms. In some cases there is an itching sensation, but examination may show that it is not due to the development of the syphilide, but to pressure of the clothing or some other external irritation.

The syphilides may appear upon any portion of the cutaneous surface, but certain forms manifest a predilection for different regions of the body. The macular variety usually develops first upon the abdomen and thorax, and then extends to the back and the extremities, but it rarely appears upon the face. The papular eruptions sometimes involve the forehead and cheeks, but are generally limited to the body. The pustular syphilides attack the entire surface, but are most marked on the scalp, the face, and the extremities. The squamous variety is most frequently observed on the elbows and knees, and the palmar and plantar surfaces.

The syphilides may be divided into two principal groups—those which occur in the secondary, and those which occur in the tertiary stage. The first group comprises the macular, the pigmentary, the papular, the papulo-squamous, the vesicular, and the small pustular varieties; the second consists of the large pustular, the tubercular, the bullous, and the gummatous.

The lesions of the secondary group are superficial, generalized, numerous, and symmetrical; those of the tertiary are deeper-seated, localized, few in number, and asymmetrical.

Macular Syphilide.

Synonyms.—Roseola syphilitica—Erythematous syphilide—Macular syphiloderm.

This eruption is usually the first symptom of secondary syphilis, and is generally developed about six weeks after the appearance of the initial lesion. It may appear at the end of the fourth week, however, or may be delayed for two or three months. It consists of a number of small round or oval spots, which are indistinct in appearance at first, but soon become bright-red in color, and then gradually change to dark-red or brown. They are generally on a level with the surrounding surface, but occasionally they are slightly elevated or semi-papular in character. They usually appear first upon the abdomen, and then extend over the thorax and the extremities, but they rarely involve the face or the hands. The eruption attains its maximum development in three or four days, and then remains unchanged for several weeks or months, after which it slowly changes in color to dark-yellow or yellowish-brown, and then finally disappears without pigmentation or desquamation.

It is not attended by any subjective cutaneous symptoms, but is frequently preceded and accompanied by marked sore-throat and severe osteocopic pains. Alopecia is also of frequent occurrence. Relapses are common.

Diagnosis.—The diagnosis of the macular syphilide is comparatively easy. The only eruptions resembling it are those of rötheln, roseola, tinea versicolor, and those due to the administration of certain medicinal substances. The eruption of rötheln, however, consists of irregular blotches, and is accompanied by more or less catarrhal symptoms, and rarely occurs after childhood. The spots of roseola are irregular in size and ephemeral in character, and are caused by some gastro-intestinal disturbance. The patches of tinea versicolor are yellowish or brown in color, furfuraceous in appearance, irregular in outline, and increase in size by peripheral extension. Medicinal eruptions are sudden in appearance, and are accompanied by more or less itching, and usually disappear as soon as their exciting cause is suspended or removed.

Pigmentary Syphilide.—This rare affection is characterized by the development of round, oval, or irregular patches of pigmentation in the skin. They vary in color from dark-gray to yellowish-brown. They are smooth to the touch, and are not elevated above the surrounding normal skin. They are most frequently met with upon the face and neck, but they also occur upon the thorax, the abdomen, and the extremities. They are not accompanied by any subjective symptoms. They appear more abundantly on women than on men, and do not appear to differ in any essential respect from the lesions of chloasma. They run a protracted course, remaining for several months or years, and are not amenable to anti-syphilitic treatment. They are usually met with during the first year of the syphilitic manifestations, and are probably produced by the disturbing effect of the syphilitic poison upon the terminal filaments of the cutaneous nerves.

Papular Syphilide.

The papular eruptions of syphilis consist of two principal groups or classes—the small acuminated, or miliary papules, and the large, flat, or lenticular papules. The papulo-squamous syphilide and the broad condylomata or mucous patches may be regarded as modifications of the lenticular variety.

Small Papular Syphilide (*Synonyms:* Miliary papular syphilide; Lichen syphiliticus).—This eruption consists of a number of minute, round, acuminated papules, which vary in size from a mustard-seed to a small shot. They are bright-red in color at first, but become dark-red or reddish-brown in a few days. They are firm to the touch, and are slightly elevated above the surrounding integument, and covered with minute scales. Some, especially those which are formed around the hair-follicles, may become transformed into vesicles, and then into pustules, but the majority remain papular, and finally disappear by resolution or by fatty degeneration and absorption. This eruption is one of the earliest manifestations of secondary syphilis, generally appearing within three months after the development of the primary lesion. It is symmetrical in character, and diffused more or less over the entire surface. The papules manifest a tendency to develop in groups or clusters of a dozen or more. This grouping is especially well marked upon the face, shoulders, and arms. The eruption is chronic in character, and liable to recur, but is not accompanied by pain or itching. In severe cases it is followed by the formation of minute permanent cicatrices, indicative of atrophy of the corium. Slight pigmentation may also remain.

Diagnosis.—The small papular syphilide might be mistaken for papular eczema, lichen ruber, or lichen scrofulosus. The lesions of papular eczema, however, are usually localized, and accompanied by marked itching and burning sensations. They soon become vesicular in character, but do not develop in clusters. The miliary papules of syphilis, on the contrary, are generalized, and are not usually accompanied by any subjective symptoms. They only occasionally become vesicular, and almost always develop in clusters. Very often there is a history of an antecedent specific lesion. In lichen ruber the eruption is accompanied by severe itching and burning, but it never appears upon the face, and pursues a different course. In lichen scrofulosus, the papules are situated upon the trunk, and are accompanied by other evidences of the scrofulous diathesis.

LARGE, FLAT, PAPULAR SYPHILIDE (*Synonym:* Lenticular syphilide).—This eruption appears later, as a rule, than the miliary syphilide, and is significant of a more obstinate form of the disease. It consists of a number of large flat papules, which vary in size from a small shot to a bean. They are round or oval in shape, firm and smooth to the touch, and are elevated above the surrounding surface. They are light-red in color at first, but soon assume the characteristic raw-ham or copper color. They are devoid of scales, and present a dull, glazed appearance. They are usually developed in large numbers, but not as abundantly as the miliary lesions. They run a protracted course, and frequently recur. They may appear upon any portion of the body, but are especially observed upon the neck, back, shoulders, and the extremities, and around the genital organs. They are also found upon the scalp, and on the forehead, where they form the characteristic "corona veneris." They slowly increase in size by peripheral growth during the first few weeks of their existence. They then remain stationary for several months, usually disappearing by disintegration and absorption, leaving more or less pigmentation and atrophy to mark their location. In some cases excoriation and ulceration take place; in other cases they become converted into pustules.

The most common forms of transformation which they undergo, however, are into moist and squamous papules.

MOIST PAPULES (*Synonyms:* Mucous papules; Mucous patches; Condylomata).—Moist papules, or mucous patches, occur only in syphilis. They consist of large, flat papules, which have been modified by the combined influence of heat and moisture. They are seen on the tongue, lips, anus, vulva, and other mucous surfaces. They are also found on the perinæum and the scrotum, in the axillæ, beneath the mammæ, between the toes, in the groins, around the umbilicus, and on any other portion of the body where apposing surfaces come in contact with each other. They vary considerably in size. Some of the large condylomata frequently measure one or two inches in diameter. They are usually slightly elevated above the adjoining surface, but may be depressed beneath it. They are soft and smooth to the touch, and vary in color from dark-red to gray. Their surface is usually moist, and covered with epithelial *débris*. Adjacent lesions frequently coalesce, forming large patches. Excoriation and ulceration may also occur, or hypertrophic granulation take place, resulting in the formation of large warty or vegetative excrescences.

Mucous patches of the tongue and lips are irregular in shape, and usually deeply fissured, and more or less painful, but they rarely ulcerate, or become the seat of vegetative growths.

PAPULO-SQUAMOUS SYPHILIDE.—This eruption usually appears late in the course of the disease. It is symmetrical in character, and may involve any portion of the integument, but its favorite seats are the palmar and plantar surfaces. It consists of a few large, round, oval, or oblong, flat papules, which are slightly elevated above the surrounding surface, and are covered by a thick, dry, white or grayish non-imbricated scale. These papules increase in size by peripheral growth, and frequently coalesce, forming large irregular patches. The scales are only slightly adherent, and can easily be detached, exposing the dark-red surface of the papules beneath. When the scales are removed they are slowly replaced. This form of syphilide is chronic in character, and may remain for years. It finally disappears by cessation of the scaling process, and absorption of the infiltration.

In severe cases, affecting the palmar and plantar surfaces, the so-called syphilitic psoriasis, the patches attain a large size, and are deeply fissured and painful. The nails occasionally become involved.

Diagnosis.—The diagnosis of the large papular syphilide is usually easy. The only affections resembling it are lichen planus, acne, and psoriasis. The papules of lichen planus, however, are angular in outline, depressed in the centre, and are limited to the forearms and legs, never appearing upon the face or neck. They are also covered by a large, waxy, transparent scale. The lesions of the syphilitic eruption are round or oval in outline, not umbilicated or depressed in the centre, not covered with a waxy scale, and they are diffused over several regions of the surface. The papules of acne are acuminated in form, bright-red in color, and are confined to certain regions of the body, as the face and neck. They are also mostly brief in duration, frequently becoming pustular, and disappearing by absorption. The eruption of psoriasis may at first resemble the lesions of the papular syphilide, but the development of the characteristic mother-of-pearl scales of the former disease will effectually settle the question of diagnosis.

The lesions resembling moist papules or mucous patches are the simple acuminated or non-syphilitic papillary new formations. They are due to local irritation of the cutaneous or mucous surfaces by acrid discharges, and spring from apparently normal tissues. The syphilitic lesions, on the other hand, are surrounded by more or less infiltration.

The papulo-squamous syphilide might be mistaken for one of the forms of psoriasis, or for squamous eczema. The lesions of psoriasis, however, are numerous and diffused, while those of the syphilide are few and localized. Psoriasis rarely affects the palmar or plantar surfaces, and never appears there without involving some other portion of the integument at the same time. Superficial desquamation is profuse in psoriasis, and scanty in syphilis. When the scales are removed in psoriasis, a bleeding or bright-red surface is exposed; when they are detached in syphilis, a dark-red papule is discovered. The lesions of psoriasis develop rapidly, and are accompanied by more or less itching; those of syphilis develop slowly, and are not attended, as a rule, by any subjective symptoms. Finally, the lesions of psoriasis are uniform in character, manifest a predilection for the extensor surfaces, and are covered by the characteristic waxy or mother-of-pearl scales; while those of syphilis are polymorphous, and are found on the flexor rather than on the extensor surface, and are covered by a grayish or dirty-white scale.

The patches of squamous eczema are irregular in shape, and are accompanied by itching and burning. They pass imperceptibly into the surrounding healthy skin, and are not surrounded by infiltration.

Vesicular Syphilide.

This is a rare manifestation of secondary syphilis. It usually appears within six months after the development of the primary lesion, but in some instances not for a year or more. The vesicles vary considerably in size, shape, and distribution. In some cases they are small and clustered together, as in eczema; in others, they are large and isolated, as in varicella. In the former they are minute in size, conical in shape, and arranged in groups or patches, and are generally observed on the trunks and extremities, rarely or never appearing on the face. They are seated upon a dark-red base, and are usually situated around the hair-follicles. They terminate either by absorption, or by transformation into pustules which break and discharge, leaving a small ulcer, which heals without the formation of a scar. They are not accompanied by any subjective symptoms.

The large, varicella-like vesicles are developed upon a reddened, infiltrated base, and frequently attain the size of a large bean. They are few in number, and are scattered over the face, trunk, and extremities. They contain at first a clear, serous fluid, which becomes purulent in a few days. They finally either dry up, or rupture spontaneously and discharge their contents. A greenish-brown crust is then formed, which is cast off in a fortnight, leaving a slight purplish discoloration, which gradually disappears. Again, successive crops of vesicles may appear and protract the eruption for months. Itching and burning are absent during the whole course of the disease.

Diagnosis. — The small vesicular syphilide resembles eczema in many particulars, but the distinction can always be made by remembering that the vesicles of eczema are of brief duration, accompanied by intense itching and burning sensations, and are not situated upon a reddened, infiltrated base. The lesions of the large vesicular syphilide might be mistaken for varicella or varioloid, but a consideration of the dark-red, infiltrated base, the history of the case, and the course of the eruption, will lead to a correct conclusion.

PUSTULAR SYPHILIDE.

Pustular manifestations of syphilis, as a rule, are indicative either of a more severe form of the disease or of a depraved or impoverished condition of the patient's tissues. The individual pustules differ in size and shape, as they also do in number. They are usually surrounded by a reddish areola, and are situated around the hair-follicles and sebaceous glands. Sometimes they are diffused over all portions of the surface, but are most frequently met with upon the trunk and the extremities. They generally begin as papules or vesicles, which are rapidly transferred into pustules; indeed, so quickly, in some, that the papular or vesicular stage of the eruption escapes observation; in others, the pustules are slowly developed upon lesions which have been in existence for weeks or months.

The pustular eruptions of syphilis are sometimes termed "pustulo-crustaceous eruptions," from their tendency to terminate in crusts. This tendency is especially manifested by the larger pustules. The crusts generally correspond in size and shape with their pre-existing lesions. They may be soft and friable, but are usually firm and hard; and in color range from yellow or brown to dark-green and black. Each crust is situated over an ulcer, which may be superficial or deep, in accordance with the character of the primary pustule. The ulcer presents a clean-cut or punched-out appearance. Its edges are sharply defined, and surrounded by a slight area of infiltration. Its base is uneven, and covered with a profuse gray, yellow, or greenish purulent secretion. Repair is protracted, but finally takes place by granulation, ending in the formation of a perhaps permanent cicatrix. More or less pigmentation also results.

The pustular syphilides may be conveniently regarded as consisting of four principal groups: the small acuminated, the large acuminated, the small flat, and the large flat varieties.

SMALL ACUMINATED PUSTULAR SYPHILIDE (*Synonym:* Miliary Pustular Syphilide).—This variety of the pustular syphilitic eruptions is the first of the manifestations of secondary syphilis. It, with a few exceptions, appears in from six weeks to three months after the development of the initial lesion, and is usually accompanied by syphilitic fever, erythema and soreness of the fauces, and more or less falling of the hair. It may not appear, however, until later in the progress of the disease. It consists of a number of minute pustules, which are developed around the orifices of the hair-follicles, and are generally penetrated by a hair. They are rarely larger in size than a grain of barley. They are situated upon a minute, reddish, elevated or papular base. They are spherical or acuminated in form, and contain a drop of sero-purulent matter, which soon becomes converted into a yellow, friable crust. This crust drops off in a few days, leaving a slight depression in the epidermis, which is likely to become the seat of subsequent pigmentation or desquamation.

The pustules sometimes are isolated, but they are usually arranged in irregular groups, and widely diffused, occasionally covering the entire surface. The thorax and back and the extremities are most frequently involved, however. The eruption is often complicated by the presence of papules, vesicles, and papulo-pustules.

LARGE ACUMINATED PUSTULAR SYPHILIDE (*Synonyms:* Acne syphilitica; Variola-form Syphiloderm).—This variety of the syphilides is seen early, but not as soon as the miliary form. It usually appears from the fourth to the sixth month after infection, but may be delayed for a year. It consists of a number of pustules, which are round and acuminated in form, and vary in size from a split pea to a small bean. They are situated around the hair-follicles, and are developed upon a dark-red or copper-colored base. They are elevated above the surface, and surrounded by a coppery areola. They develop first as small red spots, which rapidly become papular and then pustular. They contain a yellow, purulent fluid, which sooner or later becomes dried up and converted into a thick, yellowish or brownish crust, beneath which a superficial ulcer exists. The crust finally drops off, and the ulcer heals by granulation followed by a minute cicatrix. The pustules may be disseminated, but are usually grouped. They are few in number, and limited to the face and shoulders. They may, however, extend to the scalp and trunk, and in severe cases involve the entire surface. They develop either rapidly or slowly. They are not often attended by pain or itching, or any other subjective symptoms. The individual pustules generally disappear spontaneously within two or three weeks after their first appearance, but new lesions appear from time to time for several months.

Small Flat Pustular Syphilide (*Synonym:* Impetigo syphilitica).—There are two varieties of this form of eruption—the superficial or disseminated, and the deep-seated or discrete. The superficial variety is characterized by the formation of a number of small, flat pustules, which are seated upon a dark-red, infiltrated base. They begin as circumscribed, reddish elevations of the surface, which speedily become papular and then pustular. They are developed in groups, and frequently coalesce to form large irregular patches. They are surrounded by a dark-red areola, and soon become covered by dry, yellowish, greenish, or brownish crusts, beneath which more or less superficial ulceration exists. They rarely appear before the second year of the disease. They may appear upon any portion of the body, but are most frequently observed upon the face and scalp and around the genital organs. They are also met with upon the legs and forearms. They run a comparatively mild course, and heal without much permanent cicatrization.

The deep-seated pustules are isolated and few in number. They usually occur upon the scalp or on the extremities, and rarely involve the face. They belong to the tertiary rather than to the secondary stage, and may not appear until the third or fourth year of the disease. They begin as papules, and become transformed into pustules, which pursue a protracted course. They are surrounded by a coppery areola, and covered by a thick, blackish-green crust. The underlying ulcer is deep and indolent, and covered with a grayish or greenish purulent secretion. Repair gradually occurs by granulation and cicatrization, but it may be delayed for months, and is always followed by permanent disfigurement.

Large Flat Pustular Syphilide (*Synonym:* Ecthyma syphiliticum).—This eruption consists of large, flat, isolated pustules, which are situated upon a reddened, infiltrated base, and surrounded by a coppery areola. They are irregular in shape, and are from a sixteenth to a half or an inch in area. They belong to the tertiary stage, seldom appearing before the third year of the disease. They evince a marked tendency to break down early, and become covered with their characteristic crusts. Any portion of the body may be affected, but they are usually confined to the back, shoulders, and extremities. There are two varieties of this form of eruption—the superficial and the deep. In the former the pustules are numerous and disseminated, and run a comparatively brief course. The crusts which are formed by the breaking down of the pustules are flat and firmly adherent, and yellow or dark-brown in color. The underlying ulcer is superficial, and heals with slight cicatrization. The pustules of the latter are few and isolated, and generally limited to one region or one side of the body. The crusts which are formed by the breaking down of the pustules are conical in shape and dark-green or blackish in color, and seated upon large, deep, unhealthy ulcers. The edges of the ulcers are infiltrated, and their surface is covered with a foul, greenish-yellow secretion. In some cases the ulcerative process remains stationary, in others it extends peripherally. As a result of this extension, and the continual drying up of the matter which is poured out, the crust is elevated still higher in the centre, and gradually assumes a stratified or oyster-shell appearance. This form of crust is known as rupia, but is not peculiar to the pustular syphilides. It is frequently observed in the bullous group, and is symptomatic of the malignancy of the disease. It is invariably followed by marked cicatrization.

Diagnosis.—The pustular syphilides are not difficult of diagnosis. The lesions of the acuminated variety might be mistaken for the pustules of acne or of variola. In acne, however, the pustules are usually limited to the face and shoulders. They are not surrounded by the coppery areola of the syphilides, and are not arranged in groups. They run a rapid course, appearing and disappearing quickly, but are followed by successive crops, which protract the course of the eruption. Moreover, there is no history of a specific infection, nor are there any other symptoms of syphilis present. Rare cases of universal pustular syphilis may present a striking resemblance to variola, but the slightest examination of the pulse, temperature, and history of the patient will suffice to show the true nature of the disease.

The small, flat, pustular syphilides can be distinguished from simple impetigo and pustular eczema by their infiltrated base, their coppery areola, their chronic character, and the absence of subjective symptoms. Moreover, the crusts of the syphilitic lesions are situated upon an ulcerated base, while those of eczema and impetigo are seated upon a simple reddened or oozing non-ulcerated surface.

The large, flat pustules can be recognized from those of ordinary ecthyma by the history of the case, the presence of a coppery-areola, the appearance of the crust and the obstinate character of ulceration.

TUBERCULAR SYPHILIDE.

This eruption belongs to the tertiary stage of syphilis. It rarely appears before the second year of the disease, but most frequently during the third and fourth years. It may be delayed, however, for five or ten years, or even longer. It consists of a number of tubercles, or solid elevations of the skin, which vary in size from a split pea to a chestnut. They are round or oval in shape, and dark-red or reddish-brown in color. They are firm and smooth to the touch, and present a glistening appearance. They are usually seated in the corium, but may extend into the subcutaneous connective tissue. They are generally multiple, but not often present in large numbers. They may be widely disseminated, but are usually limited to one or two regions of the body. The face, neck, and shoulders appear to be favorite localities for their development. They are seldom observed upon the extremities. When a number of tubercles appear upon any portion of the body they manifest a tendency to form clusters or groups, or segments of circles, and finally coalesce and form irregular or serpiginous patches. In some cases these patches are kidney-shaped, in others they resemble a horseshoe. The development of the tubercles is slow and unaccompanied by any subjective symptoms.

After attaining their maximum growth they remain stationary for several months, and then disappear, either by fatty degeneration and absorption, or by ulceration. When they disappear by absorption, more or less pigmentation and depression of the epidermis are observed at their site for a long time. Finally, however, the skin regains its normal color and appearance.

The ulcerative process may begin either upon the surface, or in the interior of the tubercles, but, no matter where it commences, it does not cease until all of the material composing the tubercle has been destroyed. The resulting ulcer will be either superficial or deep, in accordance with the depth to which the syphilitic new formation has been imbedded in the skin. Its edges are dark-red and infiltrated, and its base is covered by a grayish, yellowish, or greenish secretion. It is round, oval, or irregular in shape, and not infrequently crowned with a thick, pigmented crust. When a group of tubercles become attacked by the ulcerative process, an extensive irregular or serpiginous excavation is produced, involving the whole affected surface. Repair gradually occurs by granulation, leaving large permanent glistening cicatrices, which are usually depressed beneath the level of the adjacent skin.

The ulceration is sometimes complicated by exuberant papillary or wart-like excrescences, which spring up from the base of the ulcers. They are covered by an offensive, yellowish, semi-purulent secretion, and vary in size. They are met with most frequently upon the scalp and around the genitalia, forming the so-called syphilis cutanea papillomata.

Diagnosis.—The tubercular form of syphilis is usually not difficult of diagnosis. The only affections which resemble it are lepra, lupus vulgaris, epithelioma, and ordinary varicose ulcers. The tubercles of lepra, however, are slower in growth, larger in size, and more chronic in character. They are accompanied by more or less anæsthesia, and are productive of extensive deformity. Lupus vulgaris usually manifests itself early in life, while tubercular syphilis rarely appears before middle age. The tubercles of lupus are smaller, moreover, and softer than those of syphilis, and pursue a more chronic course. The ulceration in lupus is superficial, the discharge is scanty and serous, and the crusts are thin and reddish. In syphilis the ulceration is deep-seated, the discharge is copious and purulent, and the crusts are thick, and present a greenish, yellowish, or dark-brown appearance. The cicatrices also differ, being hard in lupus and soft in syphilis. In syphilis there is also a history of previous infection, and other symptoms of the disease are apparent.

In epithelioma there is ordinarily only one lesion, which is slow in growth, and obstinate and painful in character. Its base, which bleeds at the slightest touch, is fungiform, or red and granular, and covered with a thin, sanguineous, or sero-purulent secretion. The age of the patient is also significant. Ordinary varicose ulcers may be confounded with those which are due to the degeneration of syphilitic tubercles. The situation of the former, however, and their occurrence in persons who are compelled to stand for hours at a time, and the varicose condition of the surrounding veins, will point to a correct diagnosis.

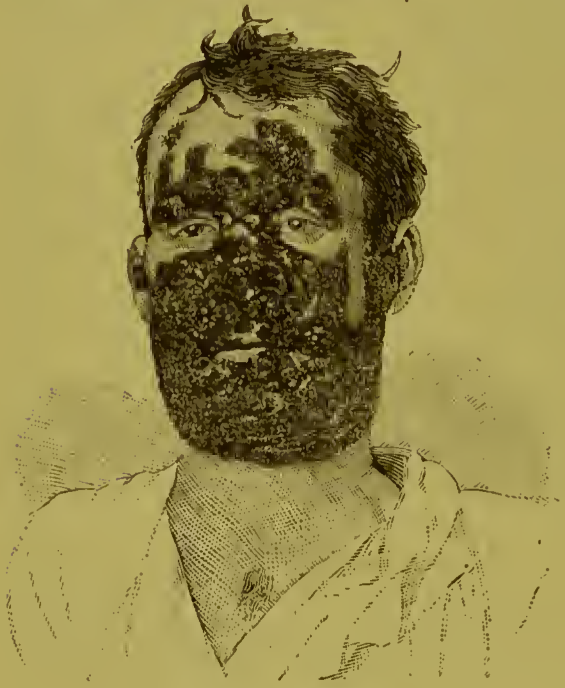

FIG. 11.—Rupia.

BULLOUS SYPHILIDE.

(*Syn.:* Pemphigus syphilitica.)

This eruption occurs only in debilitated individuals, in the advanced stages of the disease, and in infants who are the subjects of hereditary syphilis. It consists of a number of bullæ, or blebs, which vary in size from a small bean to a walnut. They are situated upon a reddened, infiltrated base, and are surrounded by a dark-red or coppery areola. They are firm to the touch at first, and filled with a clear, serous fluid, which becomes opaque in a few days. In some individuals the contents of the bullæ are purulent or bloody in character. In others the eruption is of a mixed nature, consisting of both bullæ and pustules. The eruption may appear upon any portion of the body, but is usually limited to the trunk and the extremities. After a variable time the bullæ rupture spontaneously, and the watery portion of their contents escapes. The remainder dries up into thick, yellowish, greenish, or brownish crusts, which vary in shape and size in accordance with the character of the ulcer upon which they are seated. The crusts of superficial, indolent ulcers are flat and easily detached, while those of the deep-seated, spreading variety are conical, stratified, and firmly adherent, forming the condition known as rupia. Fig. 11 represents an unusually severe case of rupia, to which my attention was called by Dr. Albert Fricke, of this city. Rupial sores pursue a tedious course, and are always followed by the formation of permanent, depressed, round, oval, or kidney-shaped cicatrices.

Diagnosis.—The lesions of this form of syphilide present a superficial resemblance to those of pemphigus vulgaris. The latter, however, occur in successive crops, and are not followed by ulceration or cicatrices, and the crusts are thin and yellowish. The bullæ of syphilis are characterized by the rapid production of large, thick, pigmented crusts, and end in protracted ulceration and permanent cicatrization.

GUMMATOUS SYPHILIDE.

It consists in the formation of one or more circumscribed tumors or nodes in the subcutaneous connective tissue. They commence as small, round, firm nodules, which can be slightly moved beneath the epidermis. They are painless to the touch, but are usually accompanied by nocturnal osteocopic pains. When first observed they are about the size of a split pea. They slowly increase in diameter, by the deposition of additional material, until they attain the dimensions of a chestnut or a walnut. There are two varieties, the superficial and the deep-seated. The superficial form visible tumors, which project above the surrounding surface. The overlying epidermis is normal in color at first, but finally becomes pinkish or reddish in hue. The deep-seated are situated in the loose fascia, between the skin and the muscles, and rarely project above the surface. They can be plainly felt, however, and outlined by the fingers as firm oval or oblong tumors. They are rarely seen before the second or third year of the disease, and may not occur until a much later period. Gummata are liable to appear upon any portion of the body, but are more often met with in those regions where the subcutaneous connective tissue is abundant, as on the buttocks, the abdomen, the sides of the neck and thorax, and on the flexor surfaces of the extremities. They are seldom observed upon the palms or soles. They are usually single, but may be multiple. The number present at one time, however, is scarcely ever more than three or four. They attain their maximum in about two months. They then remain stationary for a period, after which they become soft and fluctuating, and disappear by absorption or ulceration. When the latter is about to take place, the gumma becomes slightly painful or tender, the skin bursts near the centre of the lesion, and a small quantity of semi-purulent or blood-streaked material oozes out. The morbid process continues until an excavated ulcer, as large as or larger than the original lesion is formed. Its base is uneven and covered with a yellowish or reddish aplastic deposit. Its sides are usually steep, but may be undermined or sloping. It pursues a protracted course, and may extend to the underlying structures, producing great destruction of tissue. Healing finally occurs by granulation, with a white depressed cicatrix.

Diagnosis.—The diagnosis of gummata is usually self-evident. They might be mistaken for small fibrous or fatty tumors, but the history of the case, the situation of the lesions, the nocturnal osteocopic pains, and other symptoms of the disease, will prevent an error from being made. Gummatous ulcers can readily be distinguished from varicose ulcers by the history of the case, the character of the secretion, absence of pain, and existence of other syphilitic lesions.

Syphilitic paronychia, onychia, and alopecia are described under the affections of the nails and hair, in another part of this book. The syphilitic affections of the viscera, and of the osseous, muscular, fibrous, and nervous systems, cannot be even briefly mentioned in this article without expanding it far beyond the space to which it is limited. Their consideration, moreover, properly belongs to a work on syphilis alone. It is sufficient to say that there is not a tissue or a portion of the body which may not be invaded by this omnipresent disease, and that many baffling or obscure cases may frequently be relieved by appropriate methods when the possibility of their being of a syphilitic nature or origin is recognized.

Pathology of Syphilis.—The pathology of syphilis has been thoroughly investigated by Auspitz, Biesiadecki, Kaposi, Neumann, Otis, and others, and may be said, in brief, to consist of local cell-proliferation, and an accumulation or infiltration of small, round cells. The induration of the initial lesion is produced by infiltration of the papillæ of the corium and the subcutaneous connective tissue with small round, nucleated cells composed of finely granular protoplasm. They not only fill up the interstices of the corium and subcutaneous connective tissue, but penetrate into and through the walls of the cutaneous vessels, increasing their size but lessening their calibre. The ulceration which finally occurs is due to the interference in nutrition produced by the increased pressure upon the minute arterioles. The glandular complications of syphilis are produced by the same cellular multiplication.

The macular syphilide is characterized by similar round-cell infiltration in the papillæ of the corium, and around and within the walls of the papillary vessels.

The papular lesions are due to a circumscribed, dense, round-cell infiltration in the papillary and sub-papillary layers of the corium, and in the upper portion of the subcutaneous connective tissue. The depth and extent of the infiltration correspond with the size of the papules. The mucous patches or moist papules are preceded by a similar process in the superficial portion of the corium. The papillæ are enlarged and branched or club-shaped, and the papillary vessels are swollen and tortuous. The tubercles and gummata consist of masses of closely packed round cells, which surround and penetrate all the cutaneous structures, and finally, by their increasing pressure, obliterate the capillaries, and produce atrophy and ulceration of the affected structures.

The pustular lesions are preceded by round-cell infiltration of the corium and its vessels, but more or less exudation and migration of leucocytes also take place. When absorption occurs, the exudation is carried away through the lymph-spaces. In the vesicular and bullous lesions the exudation of serum is large, producing œdema of the adjacent tissues. The characteristic round-cell infiltration is also present, however. The various lesions of the muscular, fibrous, osseous, and nervous systems, and of the internal organs, are also due to cellular proliferation and infiltration.

Etiology of Syphilis.—Syphilis is due to the entrance into the system of the specific virus which is contained in the blood of syphilitic subjects, and in the secretions of syphilitic lesions, and is known as the virus of syphilis. The exact nature of this virus has not been determined. That it may infect the system through an unbroken surface by absorption after long contact, is probable, but an abrasion or some other breach of continuity of the surface is generally necessary. It enters the circulation through the medium of the lymphatic system. It first produces a low grade of inflammation and cell-proliferation in the walls of the lymphatic vessels at the point of contagion. These cells become infected and are detached from the vessel-walls and conveyed to the lymphatic glands. They then enter the thoracic duct, and, after mingling with the general blood-current, are carried to the various tissues of the body.

Risking tautology, I may mention that syphilis can be communicated by direct or indirect contact, or by hereditary transmission. The most ordinary method is by sexual intercourse with one diseased. It may be contracted, however, in a variety of other ways. Gynæcologists and accoucheurs have been infected through an abrasion of the fingers while making a vaginal examination. Smokers likewise by using the pipe or cigar of a syphilitic friend. Surgical instruments have also been the medium of spreading the disease. It may be contracted by kissing a person whose mouth is the subject of mucous patches, or by suckling a syphilitic child, or by using the towels, cups, knives, forks, spoons, or other utensils, which have been used by diseased persons. It may be conveyed through vaccination, by employing the lymph or scabs taken from syphilitic subjects. Washer-women may become infected through abrasions of the fingers while washing clothing stained with syphilitic discharges. The possibility of its transmission through the seminal fluid alone is denied by the most eminent authorities. Otis states as a maxim that, to make the infection of an embryo possible, the organism of the mother must first be involved.

Treatment of Syphilis.—The plan of treatment most effective in syphilis is that which is directed to secure the elimination of the virus from the system, to prevent the development of complications, and to preserve the general health of the patient. It consists in the adoption of suitable hygienic measures, the internal administration of tonics, eliminative and specific medicines, and the external application of protective, stimulating, or specific remedies; but success can only be obtained by perseverance in the effort to eradicate the poison for a period varying from eighteen months to four years.

There is no abortive treatment for syphilis. It may sometimes be advisable to excise or cauterize the initial lesion in order to allay the patient's anxiety, or to hasten the disappearance of the lesion; but the germs of the disease are in the system, and secondary symptoms will appear sooner or later. Ordinarily, however, it will be sufficient to direct the patient to apply a small quantity of mercurial ointment to the sore two or three times a day, or to use the official black-wash or yellow-wash night and morning. If the chancre assumes a sluggish, ulcerative character, it may be induced to heal rapidly by dusting its surface twice a day with a powder composed of one part of calomel and seven parts of bismuth subnitrate. Another effective application consists of equal parts of bismuth subnitrate and powdered cinchona-bark. Iodoform is invaluable, but its odor is offensive, and precludes its use except in hospital practice. Iodol is an excellent substitute for the latter drug, and can be applied alone or combined with another powder or in the form of an ointment. Good results are obtained from the use of stimulating or astringent lotions. The following are especially valuable:

℞ Hydrarg. chlor. corrosiv............. gr. ij.
Chloral hydratis..................... gr. v.
Aquæ............................. f ℥ ij.
M. Sig.: Apply externally.

℞ Zinci chloridi....................... gr. j.
Acidi hydrochlorici dilut. .... f ʒ j.
Aquæ.............................. f ℥ j.
M. Sig.: Apply externally.

If the ulceration extends widely and deeply, and becomes phagædenic in character, its entire surface should be promptly and thoroughly cauterized with fuming nitric acid, or with the actual cautery. When cauterization is performed for moral effect only, or for prudential reasons, any form of caustic may be employed, but the galvano-cautery is preferable. Its action is instantaneous, and limited to the spot which is the seat of the lesion ; the pain which it produces is only momentary, and the resulting cicatrix is usually slight. As a rule, the less irritation to which a chancre is subjected the sooner will it disappear, and the smaller will be the cicatrix by which it is followed. The internal treatment of chancre is that of the disease of which it is the first manifestation, and should be commenced as soon as the diagnosis is made.

Hygienic Treatment.—As syphilis is pre-eminently a disease of degeneration, the patient should be placed under the best possible influences to resist its debilitating tendencies. He is to be warmly clothed, and live as much as possible in the fresh air and sunlight ; the diet nourishing and easily digested, consisting largely of meat, milk, and vegetables ; tobacco and alcoholic drinks prohibited altogether, and excesses of all kinds are to be avoided. The functions of the skin, kidneys, and bowels should not be permitted to become disordered, and at least eight hours out of the twenty-four are to be given to sleep. Bathing in lukewarm water two or three times a week is essential. The patient must be cautioned against thinking about his disease, and be urged to cultivate an even, cheerful frame of mind. There is no malady more distressing or more difficult to cure than syphilophobia.

Tonic Treatment. — Tonic remedies are always useful, and frequently indispensable in enabling the system to withstand the ravages of syphilis. In some cases their employment is of even more service than the administration of specifics. Iron, especially in the form of the chloride and the sulphate, will almost always be found beneficial. Its value is due to the fact that its presence in the system increases the number of red corpuscles in the blood, thus counteracting in part the destructive influence exerted by the disease. Cod-liver oil, arsenic, quinine, strychnia, the mineral acids, and the bitter tonics, may also be given with decided advantage.

Eliminative Treatment.—The elimination from the system of the products of degeneration is secured in part by attention to the functions and hygiene of the patient, and in part by the action of the specific remedies. Marked benefit can be obtained in addition, however, by the use as adjuvants of agents that promote destructive metamorphosis, and increase the action of the various secretory organs of the body. Antimony, sarsaparilla, guaiac, stillingia, and sanguinaria are the most important of this class.

SPECIFIC TREATMENT.—The specific treatment of syphilis consists in the administration of mercury during the early stages of the disease, and iodide of potassium either alone or combined with mercury during the later stages. This is the treatment *par excellence* of syphilis, and the only one which can be relied upon to eradicate the virus from the system and prevent a return of the disease. It can be assisted by the simultaneous employment of hygienic, tonic, and eliminative measures, but without it for a basis they are of comparatively little value. The manner in which the curative influence of mercury and potassium iodide is exerted in syphilis is not known. It is probable, however, that they act in part as eliminative agents, and in part as direct antagonists of the process of cell proliferation and degeneration. Whether they act directly upon the protoplasmic matter which contains the virus of the disease, or indirectly by profoundly altering the constitution of the blood, is still an undecided question.

GENERAL MEDICINAL TREATMENT OF EARLY SYPHILIS.—The general medicinal treatment of syphilis may be appropriately divided into that of the early and the late manifestations of the disease. The primary and secondary lesions are included in the former class, and the tertiary and quaternary in the latter. Mercury is by far the best remedy in both the primary and secondary stages, and it should be employed as soon as the diagnosis is made. Nothing can be gained and much may be lost by deferring its use until secondary symptoms have appeared. The advocates of delay admit that the early administration of mercury will postpone or modify the development of the cutaneous manifestations, but they claim that this delay or modification prevents the formation of an accurate prognosis, and is of no ultimate benefit to the patient. This claim is wholly erroneous, however; but, even admitting it were partly true, the welfare of the patient is not to be endangered in the endeavor to make the physician a true prophet.

Mercury can be introduced into the system by internal administration, inunction, fumigation, or hypodermic injection. The former method is usually adopted in the early stages of syphilis, as it is the most convenient, and possesses the fewest disadvantages.

Any of the preparations of mercury are useful, given alone or in combination with any other remedies which may be indicated. The preparations which I most frequently employ are the green iodide and the corrosive chloride of mercury, but cases sometimes occur in which the red iodide, the mild chloride, blue mass, or hydrargyrum cum creta can be used with more advantage. No matter what form of mercury is adopted, it should be given in small doses at first, in order to avoid the danger of producing salivation at the beginning of treatment. The susceptibility of individuals varies so much, that too great care can not be taken in this respect.

If the patient's general condition is fair, I usually begin by directing him to take one of the following pills, half an hour after each meal and at bedtime:

℞	Antimonii et potassii tart	gr. ss.
	Hydrarg. iodidi vir	gr. iij.

M. Ft. pilulæ no. xxiv.

If they do not produce any intestinal irritation or soreness of the gums, I increase the amount of the green iodide until a fourth or a third of a grain is taken four times daily. At the end of the third week the tartar emetic may be discontinued, but the green iodide continued in increased quantity without intermission for three or four months. I then either stop it for one or two weeks, or reduce it to the one sixteenth of a grain twice a day. During the intermission I generally place the patient upon one of the following formulæ:

℞	Strychninæ sulphatis	gr. ss.
	Potassii chloratis	ʒ ij.
	Acidi hydrochlorici dilut	f ʒ j.
	Aquæ	f ℥ iij.

M. Sig.: One teaspoonful in water after meals.

℞	Tinct. belladonnæ	f ʒ ss.
	Tinct. ferri chlor	f ℥ ss.
	Aquæ	f ℥ ijss.

M. Sig.: One teaspoonful in water after meals.

℞	Tinct. ignatiæ	f ʒ jss.
	Tinct. serpentariæ	f ℥ ss.
	Tinct. coptis trifoliæ	f ℥ ijss.

M. Sig.: One teaspoonful in water before meals.

After one or two weeks of this simple tonic treatment, I renew the maximum doses of the mercurial for three or four months more. Another week of intermission then ensues, after which the mercurial is given for another protracted period, but in somewhat smaller doses. After this plan of treatment has been faithfully carried out for a year, the intermission may be lengthened to a month, and the periods during which the mercurial is continuously given reduced to six or eight weeks. If no lesions are manifest at the expiration of six months of this interrupted treatment, or a year and a half from the beginning of the disease, the mercurial is discontinued for two or three months, then administered in small doses for a week or two, and then dropped for two months more. If any lesions occur in the mean time, the treatment is resumed at once. If none appear, however, the patient may be considered to be practically cured, but should be advised not to marry for at least one year after all symptoms of the disease have disappeared. If the person is anæmic or debilitated, a small quantity of iron or of quinine may be added to each pill, or given separately, as in either of the following formulæ:

℞	Strychninæ sulphatis	gr. j.
	Quininæ sulphatis	ʒ ss.
	Acidi phosphorici dilut.	f ʒ ij.
	Aquæ	f ℥ iv.

M. Sig.: One teaspoonful before meals.

℞	Liq. potassii arsenitis	f ʒ j.
	Elix. gentianæ ferrat.	f ℥ iij.

M. Sig.: One teaspoonful after meals.

If the movements of the bowels exceed three a day, or griping, colicky pains occur, from a twelfth to a fourth of a grain of opium should be added to each pill. In some cases it may be necessary to discontinue the use of the mercurial for a few days.

If salivation occur, or the gums become spongy, the mercurial must be stopped at once, and belladonna, chlorate of potassium, and the mineral acids, given in full doses.

℞	Acidi hydrochlorici dilut.	f ℥ ss.
	Aquæ	f ℥ iv.

M. Sig.: Dessertspoonful in water before meals and at bedtime.

℞	Tinct. belladonnæ	f ʒ j.
	Potassii chloratis	ʒ ij.
	Aquæ	f ℥ iv.

M. Sig.: Two teaspoonfuls in water one hour after meals.

In addition, the mouth should be thoroughly rinsed out every two or three hours with a weak solution of common salt, or of chlorate of potassium, or with a lotion composed of half an ounce of compound tincture of cinchona and six ounces of rose-water.

The corrosive chloride of mercury is an effective and easily administered remedy. It may be given in pill-form, but is less irritating when given in solution. The doses should vary in the beginning from the one thirtieth to the one twenty-fourth of a grain, and be gradually increased until the one sixteenth or the one tenth of a grain is taken four times a day. In exceptional cases no impression is produced upon the disease until the dose has been increased to the one eighth of a grain. It may be given in water, or in one of the bitter tonics. The permanence of the solution may be insured by the addition of a small quantity of the chloride of sodium, as in the following formulæ:

℞	Hydrarg. chlor. corrosiv.	gr. j.
	Sodii chloridi	ʒ j.
	Aquæ	f ℥ ijss.

M. Sig.: One teaspoonful after meals and at bedtime.

℞	Hydrarg. chlor. corrosiv.	gr. j.
	Sodii chloridi	ʒ j.
	Tinct. cinchonæ comp.	f ℥ ijss.

M. Sig.: One teaspoonful four times a day.

In anæmic or debilitated subjects the best results can be obtained from the combined administration of the corrosive chloride of mercury and the chloride of iron—

℞ Hydrarg. chlor. corrosiv. . . . . gr. ij.
Tinct. ferri chlor . . . . f ℥ ss.
Aquæ. . . . . f ℥ iijss.

M. Sig.: Dessertspoonful in water after meals and at bedtime.

The biniodide of mercury is highly esteemed by many practitioners. It may be given alone or combined with potassium iodide. The dose varies from the one thirtieth to the one twelfth of a grain.

The mild chloride is one of the best preparations of mercury that can be used in syphilis, but it must be administered with caution. Its action is so prompt that salivation is sometimes produced by it with startling rapidity. It is especially valuable where an immediate mercurial impression is desired, as in syphilitic iritis. It may be given in grain or half-grain doses, four times a day, but, where prompt mercurialization is required, one eighth of a grain should be given every hour or two.

Blue mass is also valuable for internal use. It is slow in action, but certain in results, and seldom produces gastric irritation. The dose varies from half a grain to two grains, four times daily. It is usually given in pill-form, and may be combined with iron, quinine, antimony, or opium, when necessary.

Hydrarg. cum creta, or gray powder, is an effective and non-irritating preparation. The dose varies from one to three grains, four times daily. It may be given as a powder or in pill-form, or combined with other remedies.

Mercurial Inunction.—This is a rapid and effective method of bringing the system under the influence of mercury, and is especially useful in all cases where a speedy effect is desired, as in syphilitic iritis, syphilis of the nervous system, or of the internal organs. It is also serviceable in many old cases of the disease, and in those in which mercury will not be tolerated by the stomach. The difficulties attending its use are so great, however, that it is seldom ordered in private practice, except in the urgent cases previously referred to, and in some forms of hereditary syphilis.

The preparations employed in inunction are the ordinary blue ointment and the ointment of the oleate of mercury. The ointment of the mercurous oleate, however, as I have already shown, is far superior to the ordinary blue ointment. It is a powerful remedy, which should be employed with caution. It possesses deep penetrating powers, and by its quick diffusion frequently produces a rapid constitutional impression. Its further advantages over the blue ointment are its cheapness and cleanliness of application. A small piece, about the size of a bean, rubbed in each axilla daily, and in the surface of each thigh, will be quickly absorbed, without soiling or discoloring the clothing, and, while the friction may produce a reddening of the surface, the eczematous condition, which may follow the use of any mercurial ointment, can be avoided by having the patient take a vapor or a hot-air bath two or three times a week. An experience of several years has convinced me that frequent opening and cleansing of the follicles of the integument are necessary for the success of the inunction treatment. Otherwise, they will become clogged, an eczematous inflammation will be set up, and absorption rendered impossible.

MERCURIAL FUMIGATION.—This practically consists in placing the patient in a mercurial vapor-bath. It is a valuable method of treatment, but difficult to employ in private practice. The patient, completely stripped, is seated on a chair or stool, beneath which are a spirit-lamp, a pan of water, and a tin containing mercury. A large blanket or rubber cloak is then thrown around the patient, covering him from the neck downward. The lamp is lit, and profuse perspiration is produced by the generated steam. The mercury becomes volatilized, and, deposited upon the thoroughly relaxed skin, is finally absorbed. The lamp should be removed in fifteen or twenty minutes, and the patient permitted to cool off gradually. Any form of mercury may be used in this method, but the mild chloride is most frequently employed, as it vaporizes promptly, and its fumes are not irritating. From twenty to thirty grains are sufficient, and the process should be repeated two or three times a week.

Mercurial fumigation is especially valuable in the treatment of obstinate syphilitic eruptions, either of the secondary or of the tertiary stage. It is also useful in all old cases of syphilis, and where the internal administration of mercury is productive of severe gastric disturbance. Its good effects are due in part to the increased elimination of morbid products by the skin, and in part to the rapid absorption of the finely divided particles of the remedy.

HYPODERMIC INJECTION OF MERCURY.—The hypodermic administration of mercury * is the quickest and most effective method of combating the virus and removing the lesions of syphilis, and should be resorted to in all grave cases, and where a prompt removal of the lesions is of importance. This method of treatment was introduced to the profession by Scarenzio, of Pavia, and improved and popularized by Lewin, of Berlin. Scarenzio employed injections of the mild chloride, suspended in mucilage and distilled water, and Lewin an aqueous solution of corrosive sublimate. The albuminate, the cyanide, the green iodide, the formamide, the peptonate, and other preparations of mercury have also been experimented with since by various physicians, followed by good results from each.

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* Remarks on Treatment of Syphilis by Hypodermic Injections of Corrosive Chloride of Mercury. By the author. The Lancet, London, September 6, 1884.

Liebreich, in chemical experiments, which I witnessed in Copenhagen in 1884 and in Berlin in 1886, claimed that the formamide of mercury was the best preparation to employ hypodermically by reason of its being neutral in reaction, most soluble in water, and not coagulating albumen. Martineau, on the other hand, demonstrated thoroughly the utility of the peptonate of mercury in a large number of syphilitic patients I observed at the Hôpital Lourcine, Paris, in the fall of 1884. After using the preparations just referred to as well as all the other mercurials, and the various combinations in which they are suspended, I prefer the solution of the corrosive chloride in distilled water as being the most readily prepared, and just as effective as any that have been suggested.

The only valid objection to the hypodermic administration of the remedy is that pain is necessarily produced by the puncture of the needle. This pain is trifling in character, however, and speedily disappears. Another objection frequently urged is, that abscesses may be formed at the seat of the puncture. This complication will not occur, however, if care be taken to thrust the needle of the syringe deep into the subcutaneous or muscular tissue, so that the fluid can be speedily absorbed. In fleshy persons I usually make use of the subcutaneous cellular tissue, inserting the injection deep into its meshes, preferring the integument of the back or buttock for the operation. In thin individuals I always deposit the solution in the muscular tissue of any portion of the body, but more particularly the regions just alluded to. In 113 cases which I reported to the American Medical Association,* 2,132 injections were administered in 206 days, without being followed by abscesses or any other inflammatory sequelæ. Since that time I have employed the same method 3,163 times in 441 cases, and in no instance have abscesses resulted. The formula which I use is—

Hydrarg. chlor. corrosiv.............. gr. iv.
Aquæ .... f ℥ j.

In some cases I begin by administering one hypodermic injection daily, of five minims of this solution, and increase the dose minim by minim every second or third day, until the disease begins to abate, or until the constitutional effects of the drug are manifested. I then lessen the dose sufficiently to keep the system gently under the influence of the remedy until all traces of the affection have disappeared. In others, particularly the more robust, it has been my custom for several years to give hypodermically as much as one quarter to one half a grain of the corrosive chloride of mercury at intervals of every three or four days. J. Astley Bloxam, F. R. C. S., of London, reports recently fifteen hundred cases treated at the Lock Hospital during a period of some eighteen months with the same form of mercury hypodermically with the best result. He recommends the solution for injection be made fresh for each *séance*, and that one third of a grain of the salt just named be inserted once a week deeply into the muscular tissue, especially of the buttock. Many of the patients in whom I employed the above method of treatment had previously been given mercury internally without much benefit; others presented such marked irritability of the gastro-intestinal tract that the administration of mercury *per orem* could not be entertained. In such cases the hypodermatic method enables the physician to promptly neutralize the poison of the disease, and at the same time to preserve the tone of the stomach and support and invigorate the patient by a nutritious diet and the administration of tonics.

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* Transactions of the American Medical Association for the year 1882.

General Medicinal Treatment of Late Syphilis.—As the boundary between the secondary and tertiary stages of syphilis is not always well defined, the term *late syphilis* is frequently employed to include the obstinate secondary manifestations as well as the lesions of the tertiary and quaternary stages. The treatment of the disease in this period is varied and difficult. The remedies which are of especial service are the iodides of potassium and sodium. Some physicians prefer the former and others the latter. According to my experience they are of equal value in dissipating the lesions of syphilis, but I do not prescribe the sodium salt to patients of the uric-acid diathesis, as it may result in the formation and deposition in the system of crystals of the insoluble urate of soda. The initial dose of the iodides should not exceed ten to fifteen grains four times a day. If no appreciable effect is produced, or if symptoms of iodism do not appear, it should be rapidly increased, until one or two drachms have been given three or four times a day for several weeks. The iodides can be given in water or in simple sirup, or in any of the bitter tonics. The good effect is enhanced by giving mercury in addition, either in the same prescription or separately, at the same or different hours through the day. I usually administer them separately, directing the patient to take one sixth of a grain of the green iodide in pill-form, or one sixteenth of a grain of the corrosive chloride in a bitter tonic before meals, and ten to fifteen grains of the iodide of potassium in water about an hour after meals. Where necessary, I give the corrosive chloride hypodermically, and the iodides *per orem*. Again, I have employed in some cases iodides,* preferably the potassium iodide, from three to five grains injected deep into the muscular tissue every two or three days with most decided effect in eradicating the disease. Occasionally I have given one of the mercurials by the mouth and used the iodide † hypodermically, and at times the former has been injected and the latter given by the mouth. Obstinate cases yield rapidly to this treatment. When it is desired to give both drugs in combination, by the alimentary canal, the following may be employed :

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* Intra-muscular Injections of Preparations of Iodine in Syphilis. Schadeck, in St. Petersburg. medicin. Wochenschrift, No. 29, 1886.

† Hypodermic Use of Iodide of Sodium. Arcari, in Wien. med. Woch., No. 4, 1886.

℞ Hydrarg. chlor. cor.	gr. ij.
Potassii iodidi	ʒ v.
Syr. zingiberi	f ℥ iv.

M. Sig. : Teaspoonful in water after meals.

The well-known sirup Gibert is also justly esteemed by many practitioners. Its formula is :

℞ Hydrarg. iodidi rub	gr. j.
Potassii iodidi	ʒ j.
Aquæ	f ℥ j.
Syr. simp.	f ℥ v.

M. Sig. : One tablespoonful three times a day.

Van Buren and Keyes recommend the following :

℞ Hydrarg. iodidi rub	gr. jss.
Ammonii iodidi	ʒ j.
Potassii iodidi	ʒ ij.
Syr. aurantii cort.	f ℥ j.
Tinct. aurantii cort.	f ʒ j.
Aquæ	q. s. ad f ℥ iij.

M. Sig. : Teaspoonful in water after meals.

Iron, quinine, arsenic, strychnia, and the mineral acids given at times are useful. Marked benefit will be derived from the occasional administration of stillingia, guaiacum, sarsaparilla, sanguinaria, and the other vegetable alteratives and sudorifics. Baths, fresh air, and a nutritious diet are of paramount importance. Anodynes must be given when necessary to relieve pain or procure sleep.

Local Treatment.—The local treatment of the initial lesion of syphilis has been described on a previous page. The macular eruptions are usually uninfluenced by ointments or lotions, but are materially modified by the fumigation treatment, or by ordinary vapor-baths. The papular manifestations may be improved by baths and mercurial fumigation. The following lotion is serviceable, especially in the facial papular eruptions :

℞ Hydrarg. chlor. cor.	gr. ij.
Spt. vini rect.	℥ ss.
Aquæ rosæ	℥ iijss.

M. Sig. : Use externally every three or four hours.

Ointments are also of value :

℞ Hydrarg. chlor. mitis	gr. xx.
Bismuth subnit.	ʒ ij.
Ung. aquæ rosæ	℥ j.

M. Ft. ung. Sig. : Apply externally night and morning.

℞	Hydrarg. chlor. cor	gr. j.
	Acidi carbolici	gr. v.
	Plumbi carb.	ʒ iij.
	Adipis	℥ j.

M. Ft. unguent.
Sig.: Use externally twice a day.

The ointments of the nitrate and of the oleate of mercury, diluted in the proportion of one part of the ointment to five or six parts of the base, may also be used with benefit. Moist papules should be cleansed with soap and water, or salt and water, and then dusted over with a powder composed of equal parts of bismuth subnitrate and powdered cinchona-bark; or one part of the mild chloride of mercury and seven parts of bismuth subnitrate.

The papulo-squamous and tubercular lesions are obstinate in character, and require the protracted use of stimulating mercurial applications. Fumigation and vapor-baths in addition will be found beneficial.

The pustular, rupial, bullous, and ulcerative lesions run a tedious course, and are more amenable to internal than to external treatment. Their healing may be hastened, however, by detaching the crusts, removing all discharges from the underlying surface, and then cauterizing it with a strong solution of nitrate of silver, corrosive chloride of mercury, or carbolic acid. A protective dressing of bismuth subnitrate or of oxide of zinc may then be applied. Other excellent applications in this class of lesions are iodol and iodoform, but the peculiar and diffusive odor of the latter will limit its employment to hospital practice.

Gummata should not be opened unless the fluctuation becomes pronounced. When this takes place, an incision may be made at the most dependent part of the swelling, its contents evacuated, and the cavity syringed out with a strong solution of tincture of iodine or corrosive chloride of mercury, and then permitted to heal by granulation.

Prognosis.—The prognosis of syphilis is not unfavorable, as a rule. The improvement in personal habits and hygiene, and the adoption of a methodical rational plan of treatment, have divested the disease of many of its former terrors. It would be folly to deny, however, that it is not a serious affection, and that it does not tax the skill and patience of the physician to the utmost extent. Much depends upon the age of the patient and the state of his constitution, but more upon the prompt and systematic administration of appropriate remedies. In young, robust adults who are properly treated the disease seldom passes beyond the secondary stage. Old people, young children, and the debilitated of all ages, are unfavorable subjects, but frequently recover promptly. Intemperate or dissolute persons suffer more than those who lead an even life. When the syphilitic poison is added to the gouty, the rheumatic, or the scrofulous diathesis, it is apt to pursue an obstinate course.

The prognosis is also influenced by the character of the cutaneous manifestations. Macular or papular eruptions usually indicate a mild case. Pustular eruptions are symptomatic either of a more severe grade of infection, or of a debilitated condition of the patient. Rupia is always significant of a malignant form of the disease. Tertiary syphilis is always serious, but varies in severity in accordance with the organs which are involved. Syphilis of the nervous system is invariably a grave affection, and frequently fatal. Syphilis of the internal organs is also to be dreaded. The disease is always amenable to treatment, however, and even in the most hopeless stages can frequently be cured or considerably ameliorated. "How long after syphilis has been apparently cured should a patient remain single before he can marry, without endangering his wife and expectant offspring?" is a question often asked. The general consensus of opinion is that if a patient has been under observation for three years, and if no manifestations of the disease have appeared during the last year, he may get married without fear of communicating the disease to his wife or entailing it upon his children.

Congenital Syphilis.—Infantile syphilis is either acquired or congenital. If acquired, it is the result of inoculation with the secretions of a syphilitic lesion during parturition, or after delivery. Numerous cases are recorded in which the disease has been communicated by a mucous patch or tubercle on the nipple of a wet-nurse. The large majority of cases are congenital in character, however, and are the result of infection *in utero*.

There are many unsettled problems in regard to the transmission of syphilis to the embryo, but the weight of authority is in favor of the opinion that infection can only occur through the medium of the maternal circulation. If the mother is suffering from syphilis when impregnation occurs, or if she become infected then or at any time previous to the seventh month of pregnancy, the disease will certainly be communicated through the utero-placental circulation.

One of the most frequent results of maternal syphilis is a succession of abortions or miscarriages. As a rule, the earlier the ovum is infected, the sooner will it be expelled. The pregnancy may, however, go on to full term, and terminate in the birth of a still-born child. One of the most characteristic symptoms of syphilis in mothers is a recurrence of apparently causeless still-births. In some cases the child is born alive, but covered with an eruption, which needs no explanation. Generally, however, when the child is born alive it presents an apparently healthy appearance, but evidences of parental vice or misfortune become manifest in a short time. In one hundred and fifty-eight cases of hereditary syphilis, which were recorded by Diday, the first symptoms appeared in eighty-six during the first month after birth, in forty-five during the second month, in fifteen during the third month, and in the remainder during the fourth and fifth months. These statistics show that the disease appears almost uniformly in from two to twelve weeks after birth. If no symptoms occur during the first six months of infantile life, the probability is that infection did not take place. The disease may, however, be latent, and appear unexpectedly at a much later period.

Infants in whom the symptoms of syphilis are evident at birth are usually puny and undeveloped, and present a withered or prematurely aged appearance. The skin is dry, loose, and wrinkled, and of a tawny or dull-yellow hue. In some cases large areas of pigmentation are observed. The hair is dry and scanty, and the nails are brittle, distorted, or stunted. The neck is thin and wrinkled, and the submaxillary glands are enlarged. Various forms of eruptions are present upon the skin, especially tubercles and bullæ. The tubercles are large and flat, and widely disseminated. When situated on the buttocks and around the genital regions, and in the flexures of the joints, they become converted into mucous patches, but in other regions of the body frequently break down and ulcerate. The bullæ are similar in appearance to those of pemphigus. They are round or oval in shape, and vary in size from a small bean to a walnut. When first developed they contain a clear, serous fluid, which finally becomes opaque or greenish-yellow in color and purulent in character. They are seated upon a reddened, infiltrated base, surrounded by a dark-red or coppery areola, and are generally confined to the palms and soles, but are liable to appear upon any portion of the body, and in malignant cases not infrequently cover the entire surface. They burst spontaneously in a few days, forming yellowish or greenish crusts, which cover superficial or deep ulcers. Sometimes the ulcerations gradually heal, and the child slowly improves in health and strength, and finally makes a good but a tedious recovery. On the contrary, however, especially when the eruption is disseminated or the ulceration severe, the child suffers greatly, cries continually, and either refuses to take any nourishment, or only a small quantity at long intervals. It gradually becomes weaker and weaker, and dies in a few days, either from inanition or from an intercurrent diarrhœa. Occasionally it recovers from the first eruption, but a new crop of bullæ appears after a short interval, and, from the irritation and exhaustion which it induces, death speedily follows.

Infants who have been infected with syphilis during uterine life, but who do not exhibit any symptoms of the disease when born, may remain apparently well for several weeks or months, and even show a progressive gain in weight and color. As a rule, however, they present a peculiar melancholy appearance, and although nursing with avidity they do not get plump. They are feverish and restless, and suffer from more or less diarrhœa. The countenance is pallid or of a sallow hue, and the eyes have a peculiar staring aspect. Finally they begin to perceptibly fail in health and strength, becoming weak and emaciated, and crying nearly all the time. The subcutaneous fat diminishes or disappears, and the skin is dry, harsh, wrinkled, and sallow. These changes are especially noticeable about the face, which assumes a withered-up or wizened appearance, like that of a little old man or woman. Erythematous spots and patches are developed upon various portions of the body. They are irregular in shape and in size. They are usually light-red in color, but may be of a yellow or coppery hue. They are first observed upon the buttocks, or on the genital regions, but may be diffused over the entire surface. Many of the spots or patches become elevated in a few days, and are transformed into papules and mucous patches. Mucous patches, or moist papules, are the characteristic manifestations of hereditary syphilis. They are developed, first, at the junction of the skin and mucous membrane around the mouth, nose, anus, and other natural orifices of the body; then in the axillæ, between the toes and fingers, behind the ears, around the umbilicus, between the buttocks, and wherever heat, moisture, and friction co-exist, as in the flexures of the joints; also on the tongue, roof of the mouth, and back of the pharynx and in the larynx. In some cases superficial desquamation of the epidermis occurs at the site of the eruption; in others, the papules and erythematous patches become fissured or excoriated, and finally become the seat of extensive ulceration. Pustular eruptions are seen less frequently; they are usually commingled with vesicles and papules, and run a rapid course, terminating in ulceration and the formation of brownish or greenish crusts. Large bullæ, seated upon a reddened, indurated base, and surrounded by a pigmented areola, are sometimes developed upon portions of the body, or the entire surface. They contain a clear, serous fluid, which gradually becomes sanguineous or purulent. They rupture spontaneously, and are followed by superficial ulceration and the formation of crusts. A succession of bullæ may occur from time to time until the infant perishes from exhaustion. This form of syphilide is usually complicated by tubercles, pustules, and other lesions. In some cases, however, the bullæ are the only symptoms present.

Another marked symptom of hereditary syphilis, and one which is frequently observed before the cutaneous lesions become manifest, is "the snuffles." This is a peculiar noise heard during inspiration, and is due to the obstruction in breathing caused by the sero-purulent discharges of an accompanying syphilitic coryza or syphilitic inflammation of the nasal mucous membrane. The discharge is thin and watery at first, but soon becomes thick and tenacious, and accumulates in the nares to such an extent that breathing is interfered with, and the peculiar snuffling sound produced. As the disease progresses the obstruction increases, and finally becomes so complete that no air passes through the nostrils. The child is then compelled to breathe through its mouth altogether, and, as it can not do this and suck at the same time, nursing is rendered difficult, or impossible. Necessarily the child suffers from want of nutrition, and also from pain. If the morbid process still continue, the nasal discharges assume a fetid character; the mucous membrane becomes the seat of ulceration, which may involve the cartilage, and even extend to and destroy the small bones of the nose or of the palate. The mucous membrane lining the pharynx and larynx is usually more or less infiltrated and swollen, producing the characteristic syphilitic roughness or hoarseness of voice. In some cases the swelling is so excessive as to produce complete aphonia. Conjunctivitis, keratitis, and otitis may also follow.

In severe cases the child becomes more and more emaciated; death ensues in a few days or weeks from inanition or from an exhausting diarrhœa, or from an intercurrent attack of pneumonia or capillary bronchitis. In rare cases death has taken place in a few hours from œdema of the glottis. In less severe cases the coryza and the cutaneous lesions gradually disappear, the child slowly gains in weight and strength, and recovers with more or less nasal or palatine deformity. Corneal opacity, or purulent otitis, with impairment of sight or hearing may also result. In mild cases an apparent recovery sometimes takes place without any deformities or sequelæ whatever. The poison, or its impression, frequently remains in the system, however, and becomes manifest at a later period in the production of various lesions of the periosteum, the bones, the teeth, the skin, the viscera, and the nervous system. The consideration of these lesions properly belongs to a treatise on general syphilis.

Diagnosis.—The diagnosis of hereditary syphilis is generally self-evident. The senile facies, the snuffling inspiration, and the cutaneous lesions, form a trio of symptoms which are never present in any other disease. Simple coryza occurring in healthy children may produce difficulty of breathing, and will interfere with nursing, but it disappears with or without treatment in a few days, and is not accompanied by any cutaneous manifestations, or by the syphilitic countenance. The papular rash, termed "red gum," which occasionally appears on the second or third day after birth, might be regarded as specific in character, but it is a trivial affection, and disappears spontaneously in a few days. Intertrigo and papular eczema sometimes present a superficial resemblance to the erythematous and papular syphilides, but their course, history, and concomitant symptoms are widely different. Syphilitic bullæ may resemble those of pemphigus, but they are situated on a reddened, indurated base, surrounded by a dark-red or coppery areola, and are followed by superficial ulceration and the formation of thick, brown, or dark-green crusts. Coryza, the senile countenance, and other indications of syphilis, are also present at the same time.

Treatment.—The treatment of congenital syphilis is both prophylactic and remedial, and should be commenced at the earliest possible moment. If a pregnant woman is suffering from a suspicious eruption, or presents a history of a succession of apparently causeless miscarriages or still-births, or manifests any other appearances of syphilitic infection, she should be placed at once upon a mild mercurial course. Chalybeate and other tonics may also be given. The plan of treatment which I frequently adopt consists in the administration of a teaspoonful of the following combination one hour before meals:

℞ Hydrarg. chlor. corros............ gr. j.
Tinct. nucis vomicæ.............. f ʒ j.
Tinct. gentianæ comp............. f ℥ iij. M.

and ten drops of tinct. ferri chlor., or ten grains of potassium chlorate in water, half an hour after meals. The patient is placed upon a generous diet, and directed to stay in the open air three or four hours every day. If the mercury derange the stomach, it may be omitted from the above prescription, and given by inunction. This, however, will seldom be necessary.

When the child is born it should be nourished by its mother's milk, if possible. If the supply is inadequate, or if the parent's condition is such that nursing is not advisable, the infant must not be given to a healthy wet-nurse to suckle, but fed with cow's milk, or some of the many substitutes for its natural food. This is a rule to be rigidly enforced, or the gravest consequences may follow. Whole families have been infected by nurses who unwittingly contracted the disease from the lips of syphilitic infants while in their charge.

If the milk disagrees with the child's stomach, or fails to be properly digested, from one to three grains of pepsin may be given with each feeding. The child should be warmly clothed, well supplied with fresh air, and bathed every day in water to which a little common salt has been added. Inunctions of cod-liver oil are beneficial.

The medicinal treatment of infantile syphilis consists in bringing the system under the influence of mercury as rapidly as possible. This can usually be done by giving one sixtieth of a grain of the corrosive chloride of mercury and ten drops of Huxham's tincture in water four times a day. Good results can also be obtained from the administration of gr. one twelfth of mild chloride of mercury or one quarter of a grain of mercury with chalk three times a day. The good effects of mercury will usually be enhanced, and its disadvantages minimized, by giving from one to three minims of tincture of chloride of iron three times a day. In cases in which the stomach will not tolerate mercury in any form, its internal administration must be suspended, and half a drachm of mercurial ointment, diluted with three drachms of lard, thoroughly rubbed into the skin every day.

The local treatment should be of a mild, protective nature. The nostrils can be kept clean with a camel's-hair brush dipped in glycerine. Mucous patches are to be dusted with calomel, painful fissures touched with a strong solution of nitrate of silver, and all ulcerated or excoriated surfaces covered with a powder consisting of one part of mild chloride of mercury and five parts of bismuth subnitrate.

Obstinate cases, or cases in which the symptoms do not become manifest at an early period, generally exhibit marked improvement when half a grain or a grain of potassium iodide is added to each dose of the mercurial. In all cases, however, the treatment should be continued for several months, then suspended for a week or two, to be again resumed for a prolonged period. Chalybeate and other tonics are advisable at intervals. The sirup of the iodide of iron, in doses of from half a minim to three minims, will be found especially serviceable. Quinine, strychnia, potassium chlorate, and the mineral acids are also invaluable as adjuvants to the specific treatment.

Prognosis.—The prognosis of hereditary syphilis varies in accordance with the extent and severity of the lesions, the time of their manifestation, and the general condition of the child. As a rule, the more extensive the eruption, and the earlier the time of its appearance, the more unfavorable will be the prognosis. Children who are covered with papules or bullæ at birth usually die within a few days. Severe coryza is also a bad symptom, but not necessarily indicative of a fatal result. When the eruption is pustular or tubercular in character the prognosis is more unfavorable than when it consists solely of macules or papules. Children who are born apparently healthy, and who remain free from any affection of the skin or mucous membranes for several weeks, seldom develop the malignant form of the disease.

ERYTHEMA MULTIFORME.

Erythema multiforme is an acute inflammatory cutaneous affection, characterized by reddish or varicolored macules, papules, or tubercles, differing in size and shape.

Symptoms.—Erythema multiforme is preceded or accompanied by headache, gastric disturbance, and pain in the joints. In some cases a slight rise of temperature is observed. The eruption is varied in character, and consists of either macules, papules, or tubercles. The name of the affection—erythema multiforme—is significant of the protean character of its lesions. The eruption usually commences, however, as small roseolous spots or macules, which rapidly increase in size, forming large erythematous patches. The peculiarities of form which these patches assume have led to the employment of the terms annulare, iris, and marginatum, as indicative of their shape and appearance. When the erythematous area increases by peripheral extension, but fades in the centre, it is termed erythema annulare. When a new patch is developed within an existing ring, and rapidly undergoes the same process of peripheral extension and central resolution, a series of concentric rings are formed, exhibiting a variety of colors. This is the condition known as erythema iris. When two or more circles meet, to form serpentine bands, the eruption is termed erythema gyratum. When an erythematous patch attains a considerable size, and presents a sharply defined border, which is slightly raised above the adjacent normal surface, it is known as erythema marginatum.

In some cases the eruption commences as small papules, which vary in size from a pin's-head to a split pea. They are round or oval in shape, and bright red or violaceous in color. They are firm to the touch, and are slightly elevated above the surrounding surface. They pursue a variable course, but usually disappear spontaneously in five or six days. This form of the disease is known as erythema papulosum. When the papules increase to the dimensions of a small bean or larger, the affection is termed erythema tuberculosum. In some cases the eruption is complicated by the development of vesicles or bullæ.

The eruption is usually symmetrical in character. It may appear upon any portion of the body, but is met with most frequently upon the dorsal surfaces of the extremities. The mucous membrane is occasionally affected. The lesions pursue an acute course, usually disappearing by resolution in three or four days, leaving more or less pigmentation of the surface. The disease may be protracted for a week or more by the appearance of a second or third crop. The accompanying subjective symptoms are usually slight.

Diagnosis.—The only diseases resembling erythema multiforme are papular eczema, urticaria, and erythema nodosum. The papules of erythema multiforme are large, irregular in shape, and are not attended by much itching or burning. Those of eczema are small, and are accompanied by intense itching and burning. The lesions of urticaria are ephemeral in character, appearing and disappearing in a few minutes; those of erythema multiforme remain for days. The color and subjective symptoms are also different. In erythema nodosum the eruption consists of large, firm nodes, and not of elevated patches or papules.

Pathology.—The pathological processes concerned in the production of the lesions of this disease are dilatation of the capillaries of the corium, and exudation of serum into the surrounding tissue. In some cases hæmorrhagic extravasation takes place.

Etiology.—The etiology of erythema multiforme is still unsettled. It may occur in either sex and at any period of life. It is said to appear more frequently during the spring and autumn, but it may happen at any period of the year. In some cases it appears to be dependent upon the rheumatic or lithæmic diathesis, in others it is evidently due to disturbances of digestion. Malarial influences are also potent factors in its production. According to Lewin, it may at times be reflex in character, from genito-urinary disorders.

Treatment.—The treatment must be symptomatic and somewhat empirical in character. If there is any reason to suspect malarial poisoning, quinine should be administered in full doses. If the patient is of the lithæmic diathesis, colchicum, lithium, and the alkalies are indicated. If there is a rheumatic taint in the constitution, more benefit will be obtained from the administration of the salicylates. When evidences of gastric disturbance exist, the diet should be regulated and the digestion assisted by large doses of pepsin, either alone or in combination with nux vomica and hydrochloric acid. Iron may frequently be given with advantage, especially to anæmic or debilitated patients. The functions of the bowels should be carefully regulated in all cases. Local applications are useless, unless there is marked itching and burning, and when such is the case, weak lotions of carbolic acid or creasote will be found effective. Ointments may be used instead of lotions, if advisable.

Prognosis.—The prognosis is always favorable. The eruption invariably runs a benign course, and terminates in recovery in from one to three weeks, but relapses may take place from time to time.

ERYTHEMA NODOSUM.

Synonym.—Dermatitis contusiformis.

Erythema nodosum is an acute inflammatory cutaneous affection, characterized by a number of reddish or purplish nodules, of different shapes and sizes.

Symptoms.—The development of the eruption is usually preceded by slight fever, general *malaise*, gastric disturbance, and pain around the joints. In some cases these premonitory symptoms are not observed. The eruption consists of a varying number of nodules, which are seated in the corium and subcutaneous connective tissue. They range in size from a bean to a large walnut. They are round or oval in shape, and firm and slightly painful to the touch. Their color changes at first from light red to purple. They may be developed upon any portion of the surface, but occur most frequently upon the lower extremities, especially over the anterior surface of the tibiæ. They are also often observed upon the ulnar surface of the forearms. They are frequently developed in crops, which may appear in succession upon various regions of the surface. As a rule, they are accompanied by more or less itching and burning sensations. In some cases their growth is attended by marked febrile excitement. They number from one to thirty or more. They reach their maximum in about three days. They then remain without change for a period, after which they become soft and painless, and gradually disappear by absorption. During this stage they present a brown, green, and yellow appearance, in accordance with the changes produced in the hæmoglobin of the effused blood while undergoing absorption. The first nodules usually disappear in from ten to fifteen days after their development, but, as they may be followed by a succession of others, the disease rarely terminates for two or three weeks, and in some cases it is prolonged for months. Nodules may form on the tongue or on the mucous membrane of the mouth and pharynx, producing so much pain and difficulty of deglutition as to seriously interfere with nutrition.

The eruption may be complicated by the simultaneous development of vesicles or bullæ, or by an inflammation of the adjacent lymphatic vessels. Suppuration never occurs, but usually a slight pigmented spot remains at the side of each node for an indefinite period.

Diagnosis.—The diagnosis of erythema nodosum is comparatively easy. The only affections which present any similarity to it are urticaria nodosum, the gummatous syphilide, and ordinary contusions of the surface. In urticaria nodosum, however, the cutaneous lesions are ephemeral in character, appearing and disappearing in a few minutes or hours, and are not followed by pigmentation. In erythema nodosum the lesions remain for days, and are always followed by pigmentation. The subjective symptoms are also different.

Syphilitic nodules, or gummata, are soft and painless to the touch, single or few in number, slow in development, and frequently terminate in ulceration. The lesions of erythema nodosum are firm and painful to the touch, rapid in development, usually multiple, and never end in ulceration. The gummatous syphilide is also generally accompanied by other evidences of syphilis. Ordinary contusions of the surface may resemble the lesions of erythema nodosum when first seen, but their number, location, history, and course will prevent any error of diagnosis from being made.

Pathology.—The pathological changes in erythema nodosum consist of dilatation of the blood-vessels of the corium and subcutaneous connective tissue, and an enormous exudation of serum and blood into the interstices of the corium and the rete mucosum. The lymph-vessels are also swollen, and migration of numerous lymph-cells occurs.

Etiology.—The cause of erythema nodosum is not known. It is met with in adults and in children, in females and in males, and in apparently robust as well as in debilitated subjects. It has been considered by Bohn and others to be analogous in origin to purpura rheumatica, while Lewin considers it to be an angio-neurosis. In three cases which have come under my observation, lithæmic diathesis was the apparent cause.

Treatment.—The patient should be kept in bed until the febrile symptoms subside, after which he is to be encouraged to take moderate exercise in the open air every day. The diet should consist principally of milk, bread, fruit, and vegetables. The medicinal treatment must be varied in accordance with the requirements of each individual case. In stout or robust subjects good results may be obtained from the administration of lithium, colchicum, and the alkalies. In the anæmic and debilitated more benefit will be derived from the employment of quinine and iron. The tincture of the chloride of iron is especially valuable, in doses of twenty or thirty minims, after meals. Saline laxatives are indicated in all cases in which constipation exists. If the digestion is weak, it should be assisted by pepsin and hydrochloric acid. The pain and itching may be relieved by soothing ointments or lotions, as in the following formulæ:

℞	Veratrinæ	gr. v.
	Bismuthi subnitratis	ʒ ij.
	Adipis	℥ j.
M.	Ft. ungt. Sig.: Apply externally.	
℞	Tinct. aconiti rad.	f ʒ ss.
	Acidi carbolici	gr. x.
	Spts. vini rect.	f ʒ ij.
	Aquæ menth. pip.	f ℥ iv.
M.	Ft. loti. Sig.: Use externally.	

Prognosis.—The prognosis in uncomplicated cases is always favorable. Recovery ensues, as a rule, without treatment in two or three months, and with treatment in a much shorter period.

URTICARIA.

SYNONYMS.—Hives—Nettle-rash—Febris urticata—Urticaire—Nesselausschlag.

Urticaria is a mild inflammatory affection of the skin, characterized by the sudden development of a number of wheals, which are ephemeral in character, and are accompanied by marked stinging, pricking, itching, or burning sensations.

Symptoms.—Urticaria may appear at any period of life, but it is most frequently observed during childhood. Its advent is usually preceded by general lassitude, slight headache, epigastric oppression, and other symptoms of gastro-intestinal disturbance. The tongue is usually furred, and the temperature is elevated from half a degree to one or two degrees above the normal. In many cases, however, no evidences of constitutional disturbance can be observed until after the development of the characteristic eruption.

The eruption appears abruptly, and not infrequently reaches its maximum development in a few minutes. It consists of a number of wheals, in size from a split pea to a silver dollar, or larger. They are firm to the touch, and are slightly elevated above the adjacent cutaneous surface. They number from four or five to a hundred or more. They are round or oval in shape, but may assume a variety of irregular forms. They vary in color from white to pink or bright-red, but generally present a white elevated spot in the centre, and are surrounded by a more or less distinct areola. They are usually isolated, but may coalesce and form large, irregular patches. They may be developed upon any portion of the cutaneous surface, but are most frequently met with upon the chest and abdomen and upon the extremities. They have also been found upon the mucous membranes. They are accompanied by burning, pricking, or stinging sensations similar to those which are occasioned by contact with the stinging nettle. These differ in severity; in some producing only trifling annoyance, and in others entailing intense distress. The desire to scratch becomes irresistible in severe cases, and the patient often tears his flesh to obtain relief. The relief, however, is only temporary, and the irritation caused by scratching invariably produces an increase in the number and size of the wheals. The eruption is extremely ephemeral in character. It rarely remains upon the surface for more than a few hours, and frequently disappears in a few minutes. In some it attacks several regions of the body in succession, but only remaining for a brief period in each location. The individual wheals are also evanescent in character, appearing and disappearing in groups every few minutes. Urticaria is ordinarily an acute affection, and rarely lasts longer than a few hours or a day or two, during which several outbreaks of the eruption occur. It may continue, however, as a chronic affection. Its duration depends entirely upon the discovery and removal of its exciting cause.

Acute Urticaria.—An attack of acute urticaria is usually preceded or accompanied by a feeling of languor and general depression. The tongue is coated, the pulse is quickened, the temperature is slightly elevated, and there is more or less nausea and epigastric oppression. The urine is usually high-colored and strongly acid. The eruption appears abruptly and spreads rapidly, sometimes covering the whole body in an hour or two. Generally, however, it is limited to one or more regions of the surface. The individual wheals are extremely evanescent, disappearing and reappearing several times during the attack. Friction and pressure always hasten their reappearance and increase their number. When they occur on the face they appear as a rule on the forehead, eyelids, cheeks, nose, and ears, producing more or less swelling and disfigurement. They generally remain isolated, however, and, unlike those which are developed on the trunk and extremities, do not coalesce and form large, solid, irregular masses. The eruption of acute urticaria is invariably the seat of intense burning, pricking, or stinging sensations, which sometimes become almost unendurable. Finally, after the lapse of a few hours, or a day or two, the symptoms gradually subside, the itching and burning cease, no new wheals are developed, and those which are present disappear without desquamation or pigmentation. There are several varieties of acute urticaria, which, owing to their peculiar features, require special description.

Urticaria Papulosa.—This form of the disease is also known as lichen urticatus. It occurs almost always in young children, and particularly in those who are improperly fed or poorly nourished. It is characterized by the development of a number of small isolated papules, which usually appear suddenly, and after remaining for a day or two gradually disappear. They are in size from a pin's-head to a split pea. They are developed around the hair-follicles. They are generally bright-red in color, except at the centre, which is white or paler than the periphery. They may appear upon any portion of the body, but are most numerous upon the extremities. They cause intense itching, and, as a consequence, the little patient resorts to scratching for relief, frequently tearing off the apices of the papules, and covering the surrounding skin with excoriations, which remain after the papules have disappeared. In some cases the papular eruption is accompanied or followed by the development of a number of minute vesicles.

Urticaria Bullosa.—This is a rare form of urticaria. It is characterized by bullæ as well as by large wheals. In some cases the eruption consists at first solely of wheals, which are gradually converted by excessive exudation into bullæ. They may become so large as to resemble those which are formed in pemphigus. They are accompanied by severe itching and burning sensations.

Urticaria Nodosa.—This variety is also known as giant urticaria, and is of rare occurrence. It is characterized by the development in the skin and subcutaneous connective tissue of large tubercles or nodules, in size from a chestnut to a small egg. They are hard to the touch, and elevated above the adjacent surface. They seldom appear upon the face. They are the seat of intense burning and itching, but generally disappear in a few hours.

Urticaria Hæmorrhagica.—This form of urticaria is usually seen as a complication of purpura. The latter is, however, the primary and more important affection. The wheals are due to the irritation produced by the lesions of purpura, and are ephemeral in character.

Urticaria Intermittens.—In this variety the eruption appears regularly every two or three days, or on a certain day each week, and after remaining for a short time disappears to reappear again at the end of the same interval. It may or may not be accompanied by febrile symptoms.

Urticaria may occur in connection with malaria, rheumatism, Bright's disease, scarlatina, measles, variola, pertussis, and various nervous and gastro-intestinal disorders. It frequently is a complication of scabies and pityriasis. It has also been observed as a sequela of arsenical poisoning.

CHRONIC URTICARIA.—In chronic urticaria the eruption recurs at regular or irregular intervals for months or years until the source of irritation is discovered and removed. In some cases a fresh crop of wheals appears daily. The itching and burning sensations are less severe, however, as a rule, than in the acute variety, and are sometimes absent. Constitutional symptoms may or may not be present.

Diagnosis.—The diagnosis of urticaria is easy. The sudden appearance of the characteristic wheals, their brief duration, their disappearance without desquamation, and the accompanying itching and burning sensations, form a complexus of symptoms that are not present in any other disease. The only affections that present any resemblance to urticaria are erythema simplex and erythema multiforme. In erythema simplex, however, the patches of hyperæmia are larger than those in urticaria. They are uniformly red in color, are not elevated above the adjacent surface, and are unaccompanied by the subjective sensations of urticaria. The eruption of erythema multiforme sometimes closely resembles that of urticaria. It is more permanent in character, however, usually remaining unchanged for several days, and is not attended by any marked itching or burning sensations. Urticaria nodosum might be mistaken for erythema nodosum, but the nodules of the latter affection are painful to the touch and remain for several days, while those of the former usually disappear in a few hours. Urticaria bullosa can readily be distinguished from pemphigus by the presence of one or more wheals and the course of the disease. Facial urticaria has been mistaken for erysipelas, but a consideration of the history of the case, the ephemeral character of the eruption, and the absence of the constitutional symptoms of erysipelas, would have prevented that error from being made.

Pathology.—The lesions of urticaria are due to a sudden exudation of serum into the upper layers of the skin. The vaso-motor system and the muscular fibres of the corium are intimately concerned in their production. The first step in the pathological process consists of irritation either direct or reflex of the cutaneous vaso-motor nerves. This produces spasmodic contraction of the cutaneous vessels, followed by dilatation and exudation of serum. The superficial and deep vessels of the corium are involved. More or less migration of white corpuscles takes place. The muscular fibres of the skin remain in a state of contraction, and by forcing the blood toward the periphery produce the pale centre and hyperæmic areola of the eruption.

Etiology.—Urticaria is due to direct or reflex irritation of the peripheral vaso-motor system, and is produced by either external or internal causes. Among the external causes are the bites of mosquitoes, bed-bugs, fleas, and other insects, or contact with a star-fish, jelly-fish, or with the stinging nettle and other plants. It may also be occasioned by wearing too heavy or too tight clothing in warm weather, or by flannel underclothing or articles of apparel which have been colored with poisonous dyes. Persons who have a delicate skin and a nervous temperament are peculiarly liable to be attacked by urticaria when they become exposed to any source of irritation.

Among the internal causes, gastric and intestinal disorders hold the most prominent place; in fact, ninety per cent of the cases can be traced to some disturbance of the alimentary canal. Excessive drinking of wine or beer, or over-indulgence in any rich variety of food, may develop a copious eruption at any time. Certain articles of diet, such as fish, oysters, lobsters, crabs, shrimps, pork, sausage, and mushrooms, are well known as being especially prone to produce an outbreak, particularly if eaten during warm weather. It is probable that the irritation is then due to fermentative changes or to a special poison generated by decomposition of the offending substance before digestion is completed. In other cases the attacks always follow the ingestion of particular varieties of food, such as rice, oatmeal, strawberries, raspberries, and buttermilk, and are probably due to an individual idiosyncrasy. Owing to a similar idiosyncrasy, outbreaks of urticaria sometimes succeed the administration of quinine, salicylic acid, salicylate of soda, kairin, antipyrine, iodide of potassium, turpentine, chloral, cubebs, copaiba, arsenic, and valerian. Intestinal worms are occasionally a source of the affection. Urticaria may be provoked by menstrual and uterine disorders in females, and by any disturbance of the genito-urinary organs in males; and in susceptible subjects by fright, anger, or any intense mental emotion. It may occur after or during an attack of variola, scarlatina, measles, rheumatism, Bright's disease, asthma, purpura, pertussis, neuralgia, and other nervous disorders. Chronic urticaria is frequently due to malaria; in other cases it is dependent upon gastric or intestinal derangements. Lithæmia, and other disturbances of the organs of elimination, are also potent causes in its production.

Treatment.—The most important consideration in the treatment of an attack of urticaria is to discover and remove the exciting cause as soon as possible. In acute cases, inquiry should be made as to the nature and amount of the food recently partaken of, and if the indications point to it as the disturbing cause, and there is reason to believe that it is still in the stomach, an emetic of apomorphia, ipecacuanha, mustard, or salt and water, should be administered at once. Immediate relief can often be obtained by free vomiting. If several hours, however, have elapsed since the offending substance was swallowed, the probability is that it has passed into the intestinal canal, and emetics will be of no avail. A full dose of the mild chloride of mercury, castor-oil, sulphate of sodium, sulphate of magnesium, or Rochelle salts, should then be given to secure free purgation, and followed by smaller doses once or twice daily until recovery is complete. It is well to restrict the diet to bread, milk, and soup for a few days. Cold water and carbonated waters are not at all objectionable, but wine, beer, and other alcoholic liquors must be rigidly avoided.

In those in which the attack can not be traced to any particular article of food, relief can usually be obtained by regulating the diet, and directing the patient to take five grains of blue mass at bedtime and a mild saline aperient in the morning. In cases in which there is marked acidity or irritability of the stomach, and the urine is scanty, high-colored, and strongly acid, bicarbonate of potassium in ten-grain doses every two hours will be found invaluable. Acetate of potassium, liquor potassæ, and bicarbonate of sodium are also of service. When the irritability of the stomach can not be traced to any assignable cause, I have obtained marked benefit by the administration of oxalate of cerium in ten-grain doses, either alone or combined with a sixteenth of a grain of morphia. Bismuth, belladonna, dilute hydrocyanic acid, ether, chloral, and chloroform will also be found at times beneficial; likewise the mineral acids. In all cases, however, one or two movements of the bowels should be secured each day.

In the subacute variety the following combination will generally afford prompt and often permanent relief:

℞ Magnesii sulphatis	℥ ss.
Ferri sulphatis	gr. xij.
Acidi sulphurici dilut.	f ʒ j.
Aquæ	q. s. ad f ℥ iij.

M. Sig.: Two teaspoonfuls, well diluted, three times a day.

The various alkaline mineral waters may also be administered with benefit.

In chronic urticaria the source of irritation should be diligently sought for and removed. The food should be light and nutritious, and the clothing warm and non-irritating. If lithæmic or gouty symptoms are present, great relief can often be obtained from—

℞ Tinct. aconiti rad.	♏ xvj.
Vini colchici rad.	f ʒ ijss.
Potassii acetatis	℥ ss.
Aquæ	f ℥ iijss.

M. Sig.: Dessertspoonful in water three times a day.

If digestion is slow or incomplete, good results may be derived from the administration after meals of a powder containing ten grains of pepsin, one grain of ipecacuanha, and one fortieth of a grain of strychnine. Apollinaris or Vichy water, unrestricted as to quantity, is beneficial in these cases, and often aids materially in effecting a cure. Quinine in five-grain doses, three times a day, will be found to be invaluable in cases of an intermittent type. It will also be of service in many other cases of chronic urticaria. Salicylate of sodium or the bromide of lithium will sometimes effect a cure when quinine has failed. Arsenic, atropia, chloride of ammonium, sulphur, and the sulphites and hyposulphites are of value in some cases. The remedy from which I have obtained the best results, in obstinate cases, however, is sulphurous acid. I usually give it in doses of from one half to one drachm, three times a day, well diluted with water.

In cases due to reflex irritation from the genital organs, prompt relief is effected by drachm-doses of the fluid extract of salix nigra. Bromide of potassium is also serviceable. Cases attended with chronic constipation which have resisted other treatment may be benefited and often cured by hypodermic injections daily of two to four drachms of castor oil.

External treatment is of prime importance in both acute and chronic urticaria. The itching and burning sensations are usually so intense as to demand immediate attention. All tight, coarse, or improper articles of clothing, and other external sources of irritation, should be removed, and soothing applications made to the affected surface. Various lotions and ointments may be used for this purpose. In some cold water, either in the form of a douche or the cold compress, will be sufficient. In others a lotion, composed of equal parts of vinegar and water, will be found beneficial. Another excellent application is composed of one part of whiskey and two parts of water.

Gratifying results can usually be obtained from the use of alkaline lotions or baths, containing a drachm of bicarbonate of sodium or a drachm and a half of bicarbonate of potassium to the gallon of water. Weak carbolic-acid lotions will often be found useful. I sometimes order :

℞ Acidi carbolici	f ʒ ss.
Spts. vini rect.	f ʒ iv.
Aq. camphoræ	f ℥ vj.

M. Sig. : Apply externally.

The officinal creasote water may also be employed with advantage. Another efficacious application is :

℞ Tinct. aconiti rad.	f ʒ j.
Aq. menth. pip.	f ℥ iv.

M. Sig. : Use as a lotion every hour.

A solution composed of menthol five grains, and water one ounce, is a good remedy. A variety of other lotions have been recommended, the most valuable of which are: benzoic acid ten grains, alcohol four drachms, water six drachms; chloral thirty grains, water one ounce; chloroform five minims, alcohol one drachm, water four ounces; corrosive chloride of mercury two grains, water four ounces; dilute hydrocyanic acid ten minims, water three ounces; dilute sulphuric acid one drachm, water eight ounces; citric acid two drachms, water six ounces; acetic acid one drachm, water five ounces; carbonate of ammonia one drachm, water four ounces. In many cases ointments may be employed with advantage. I sometimes order:

℞	Acidi carbolici	ʒ ss.
	Camphoræ	ʒ j.
	Chloral hydrat	ʒ j.
	Ung. aq. rosæ	℥ ij.

M. Ft. ung. Sig.: For external use.

Another excellent combination is:

℞	Bismuthi subnitratis	ʒ ij.
	Ung. veratrinæ	℥ j.

M. Ft. ung. Sig.: Apply externally.

The ordinary benzoated oxide of zinc ointment is also a serviceable application. In chronic cases great benefit can be obtained from the employment of baths containing half an ounce of dilute nitro-muriatic acid to the gallon of water. Ordinary salt-water baths are of value.

Prognosis.—The prognosis of urticaria is always favorable. Acute cases can be promptly relieved by appropriate treatment, and frequently subside spontaneously without any medication. Relapses may occur from time to time, but they are as amenable to treatment as the primary attack.

Chronic urticaria is a more stubborn affection, and sometimes baffles all treatment for months, but it disappears when the irritation which produces it is discovered and removed.

Urticaria Pigmentosa.—A brief description may be given here of a rare affection which has been termed urticaria pigmentosa by some writers, and xanthelasmoidea by others. It manifests itself during infancy or early childhood. It is characterized by the sudden appearance of wheals, tubercles, or large papules, which are elevated above the surface, and vary in color from pink to yellow or dark-brown. They remain prominent for several days or weeks, and then slowly subside, leaving large, green, brown, or yellow pigmented and indurated spots to mark their location. In some cases the wheals do not disappear, but remain as permanent new formations in the skin and subcutaneous connective tissue. The eruption is accompanied by intense itching and burning, and more or less constitutional disturbance. The pathology of this affection is unknown. Some observers regard it as a distinct disease, while others believe it to be only a variety of urticaria. The treatment should be palliative and symptomatic.

LICHEN PLANUS.

Lichen planus is a chronic inflammatory cutaneous affection, characterized by the formation of small, flat, circular or quadrilateral, reddish, umbilicated papules, which pursue a chronic course, but finally terminate in resolution, and are followed by more or less pigmentation of the surface.

Symptoms.—The eruption usually develops without any premonitory symptoms. It is symmetrical in character, and consists at first of a variable number of minute red papules, which are of about the size of a mustard-seed, and are accompanied by more or less itching. They may appear upon any portion of the surface, but most frequently upon the anterior surfaces of the forearms and the tibial surface of the legs. They have also been observed upon the tongue and the mucous membrane of the mouth and fauces. They attain their full development in a few days, and are in size from a pin's-head to a split pea. They are then quadrilateral or irregularly rounded in shape, and slightly elevated above the surrounding surface, from which they rise abruptly. They are dark-red in color, and present an umbilicated appearance. They are not surrounded by an inflammatory areola. They are firm to the touch, but not painful. Their surfaces are usually smooth, but may finally become the seat of slight furfuraceous desquamation. The papules may be isolated and disseminated over a wide area, but generally manifest a tendency to form groups or bands of various sizes. They remain discrete, however, and do not coalesce and form large patches. The course of the eruption varies. It may subside spontaneously in a few weeks, or it may remain for an indefinite period. Fresh lesions occur from time to time. When the papules finally disappear, marked pigmentation of the epidermis is seen at their site. In some cases more or less desquamation may also be observed, but neither vesiculation nor pustulation takes place. The intervening skin remains normal in structure and appearance throughout the course of the disease.

Diagnosis.—The only affections which present any resemblance to lichen planus are lichen ruber, lichen scrofulosus, papular eczema, psoriasis, and the papular syphilide. The papules of lichen ruber, however, are rounded and acuminated, and accompanied by intense itching; those of lichen planus are quadrilateral, flattened, and umbilicated, with little or no itching. In lichen ruber the intervening surface becomes reddened and infiltrated, and the whole system is profoundly involved. In lichen planus the intervening skin remains normal, and the general health is unaffected. In lichen scrofulosus the papules are reddish-yellow in color, and are situated around the hair-follicles. They are only observed in persons of the scrofulous diathesis, and rarely occur after the twenty-fifth year. The papules of lichen planus are dark-red in color, and are developed around the orifices of the sudoriparous glands. In papular eczema the papules are arranged in groups, but they are seated upon an inflamed surface, and severe itching and more or less vesiculation and desquamation follows. Some cases of psoriasis may, in their early stages, present a slight resemblance to lichen planus, but the development of the characteristic mother-of-pearl scales will make the diagnosis certain. The papules of syphilis are developed in groups, but their large size, coppery color, and extensive distribution, and the presence of other symptoms of the disease will prevent any diagnostic error.

Pathology.—The lesions of lichen planus are the result of a circumscribed inflammation of the papillæ and the upper portion of the corium. The vessels of the papillary layer are dilated and tortuous, and the interspaces are crowded with leucocytes. The umbilicated appearance of the papules is due to the fact that they are situated around the orifices of the sudoriparous ducts, and that while their margins are elevated by the exudation their centres are prevented from rising by their attachment to the duct. The pigment changes are due to the escape of the red corpuscles and deposition of the coloring-matter in the cutaneous tissues.

Etiology.—The cause of the eruption has not been definitely ascertained. It attacks indiscriminately male and female. It is most frequently observed between the twentieth and fortieth year. According to my experience, it is almost invariably associated with evidences of general debility. Improper or insufficient food, nervous depression, and mental anxiety are probably the chief causes in its production.

Treatment.—This should be both constitutional and local. Exercise in the open air is essential. The diet should consist principally of beef, milk, eggs, and fruit. The condition of the alimentary canal is to be carefully ascertained. If any digestive disturbances exist they must be promptly remedied. If constipation is present, it must be removed. If there are evidences of general debility, gentian, serpentaria, coptis trifolia, and quinine may be given with advantage before, and iron and nux vomica after, meals. In cases arising from nervous depression or mental fatigue, great benefit will be derived from the administration of one drachm of the fluid extract of erythroxylon coca half an hour before, and one drachm of the following combination half an hour after, meals:

℞ Liq. potassii arsenitis.................. f ʒ j.
Tinct. nucis vomicæ.................. f ʒ ss.
Acidi phosphorici dilut................ f ʒ ij.
Syr. simp............................ f ℥ ij. M.

In cases accompanied by marked anæmia, rapid improvement will result from the administration of ten minims of the tincture of the chloride of iron before, and seven to fifteen grains of chlorate of potassium after, meals. Cod-liver oil and the extract of malt are valuable in debilitated cases.

If the eruption consists of a few scattered papules no local treatment will be necessary, except to avoid the use of irritating underclothing. When the papules are numerous and grouped, and accompanied by more or less itching, various soothing lotions or ointments may be employed, or the surface covered with a saturated solution of the bicarbonate of sodium.

Prognosis.—The prognosis is always favorable. The eruption is not accompanied by any constitutional symptoms, and, while it may occasionally manifest a disposition to linger, it eventually becomes amenable to treatment and disappears. More or less pigmentation remains for a long time at the site of the eruption, but finally the epidermis resumes its normal color.

LICHEN SCROFULOSUS.

Lichen scrofulosus is a chronic inflammatory cutaneous disease, attacking persons of a scrofulous diathesis, and characterized by the formation of a number of minute papules, which are situated around and over the hair-follicles.

Symptoms.—The eruption of lichen scrofulosus consists of a number of small papules; in size ranging from a mustard-seed to a small pea. They vary in color from pale red to yellow, or reddish-brown. They are firm to the touch, and are slightly elevated above the surrounding surface. They are observed most frequently upon the thorax and abdomen, but may occur upon the back, the extremities, the face, the scalp, or any other region of the body. They are usually developed in groups, which occasionally coalesce and form large, irregular patches. The apex of each papule is covered with a small whitish scale. The eruption pursues a chronic course. The papules, which are first developed, gradually disappear by absorption and desquamation, but are followed by a second crop. These in turn become absorbed and are succeeded by others. Finally, the morbid process ceases, the existing lesions disappear, and recovery ensues.

The papules of lichen scrofulosus do not itch, and are not accompanied by any subjective symptoms; but the presence of the scrofulous diathesis is usually manifested by enlargement of the cervical or axillary glands, or other significant signs. More or less discoloration of the general surface may also exist.

Diagnosis.—The lesions of lichen scrofulosus resemble somewhat those of lichen ruber, keratosis pilaris, papular eczema, and the small papular syphilide. In lichen ruber the papules are bright-red in color, however, and gradually involve the whole surface, but they do not manifest any tendency toward grouping. In keratosis pilaris the papules are gray in color, and are generally confined to the extremities. They are formed exclusively of epidermic scales, and are not developed in groups.

The papules of eczema are irregular in size, bright-red in color, and usually limited to one area of the surface. They are complicated by the formation of vesicles, and are accompanied by severe itching and burning sensations. They run an acute course. The papules of syphilis are dark-red or reddish-brown in color, and irregular in size. They are widely distributed, and are attended by other symptoms of the disease.

Pathology.—The pathology of lichen scrofulosus has been thoroughly studied by Kaposi. The papules are produced by inflammatory exudation and cell-infiltration into the hair-follicles and sebaceous glands, and into the tissues which immediately surround them. The morbid process begins at first around the blood-vessels and in the connective tissue at the base of the hair-follicles. The cells finally penetrate into the cavities of the follicles and the glands, distending them to such an extent as to elevate the epidermis and produce the characteristic papules. The lesions may disappear by absorption, or by superficial ulceration and the formation of minute cicatrices.

Etiology.—Lichen scrofulosus is rarely met with in the United States. It appears to be more common in males than in females, and is usually encountered about the age of puberty. It may, however, appear at any age. It is probably due indirectly to the scrofulous diathesis, but its exact exciting cause is not known.

Treatment.—Nutritious food, fresh air, sunlight, and warm clothing are of paramount importance in the treatment of lichen scrofulosus. The patient should also be directed to sponge the entire surface with salt water two or three times a week.

Medicinally, the best results can be obtained from the administration of large doses of cod-liver oil. Inunctions or hypodermic injections of the same remedy are also of service. The iodide of iron will often be found valuable. Quinine, strychnia, and phosphorus may also be administered.

Prognosis.—The prognosis is always favorable. The eruption may prove obstinate, but time and proper treatment will finally effect a cure.

PRURIGO.

SYNONYMS.—Prurigo (Hebra)—Juckblattern—Strophulus prurigineux (Hardy).

Prurigo is a chronic disease, characterized by the development of small solid, pale, or somewhat red and isolated, deeply seated, or slightly elevated, papules, accompanied with intolerable itching, thickening, and pigmentation of the skin.

Symptoms.—The disease almost invariably appears early in life, often during the first or second year, by the formation of wheals or a general irritability of the skin. It occasions violent scratching, the symptoms disappearing to again reappear, and the peculiar eruption gradually developing from the second to the seventh year. The small, isolated, and irregularly distributed papules which make their appearance are sub-epidermic, and about the size of a pin's head, or a little larger. They are detected better by touch than by sight, as they are scarcely raised above the level of the skin. They are firm, and differ little, if any, from the surrounding integument in color, but at times present a red or purplish hue. They may be pierced with hairs, and covered with a dry and an attenuated epidermis. They occur most frequently upon the outer surfaces of the extremities, particularly of the legs; the extensor part of the arms, the lumbar and gluteal regions, may also be involved. The other portions of the skin may be affected likewise; the axillary, popliteal, palmar, and plantar regions are, however, always exempt, and in well-marked cases present quite a contrast to the adjoining invaded skin.

The lesions, even before being perfectly developed, are attended with intolerable and persistent itching, which causes the sufferer to scratch and tear off the apices of the papules, from which exude serum and blood, which dry into crusts. The itching and scratching continue as the disease progresses, the skin becoming, in addition, thickened, rough, fissured, and pigmented. The hairs may be removed or torn off by the scratching. At times buboes may follow from the severe irritation, or inflammation, which is set up in the same way. Eczema may also arise as a complication, either from the use of the finger-nails in scratching, in the vain effort to obtain relief, or from the application of irritating remedies. It is divided into two forms, namely, prurigo mitis and prurigo ferox or agria; in the first the symptoms are mild, while in the second they are more severe. They begin in one or the other form, and, as such, run their course singly. The disease generally lasts a lifetime, and, by its constant annoyance, exhausts the patient, giving rise to debility and often great emaciation.

Diagnosis.—The symptoms of prurigo are so marked and characteristic as to be rarely mistaken for any other affection. Occasionally it is liable to be confounded with pediculosis, scabies, paræsthesia, and eczema. The presence of the pediculus on the skin or in the clothing, and the exemption of the hands from its ravages, are sufficient to establish the diagnosis. Prurigo may be confounded with scabies, but the latter generally attacks the flexures, the penis, scrotum, or fingers, while the former involves particularly the extensor portions of the legs. Paræsthesia, of all diseases, is most likely to be mistaken for prurigo. Paræsthesia may happen at any period of life, and the lesions are secondary; prurigo commences generally in childhood, and the lesions are primary. Prurigo occurs, as a rule, among the badly nourished, and paræsthesia among all classes. In paræsthesia the integument is normal, except when irritated; in prurigo it is the seat of papules primarily, and is accompanied with thickening of the skin, which seldom follows in the former. Prurigo invades particularly the extensor surfaces of the legs, while in paræsthesia any part or the entire body may be involved. Prurigo is attended with persistent itching; the disease continues years, or a lifetime. In paræsthesia the irritation is frequently relieved or cured by a suitable course of treatment.

Eczema may arise as a complication of prurigo from scratching, but the location of the papules, their color, grouping, and the existence of other lesions or evidences of eczema, is sufficient for the diagnosis.

Pathology.—Microscopical examination reveals no peculiar anatomical changes in prurigo. The appearances observed are similar, in many respects, to those of papular eczema. The papillæ and the rete are filled with young cells and an exudation of serum occurs. As the disease becomes chronic more or less hypertrophy takes place in the corium, with pigmentation, the glands becoming enlarged or atrophied, and the epithelium may undergo fatty degeneration.

Etiology.—The cause of prurigo is obscure. It is rare in this and other countries, but is common in Austria. It occurs, according to the experience of Hebra, usually among poor children who are badly nourished. Sometimes it is also observed among the better classes. It is more severe in winter than at any other time of the year.

Treatment.—Remedies which improve the general health assist the action of the local agents which are necessary to relieve the sufferer from the persistent itching which is present. Cod-liver oil, iron, quinine, and arsenic may be used, according to the requirements of the case. Simon, Pick, and Schwimmer have given daily hypodermatic injections of 0·01 gramme of pilocarpine with beneficial effect. Schwimmer states that the same may be said of ergotin, in doses of from 0·05 to one gramme per day. In one case I obtained good results from subcutaneous injections of one eighth to one fourth of a grain of cocaine hydrochlorate. The local treatment, which is all-important, should consist of baths, particularly the water with soap, the vapor and the medicated vapor. Tar, naphthol, and sulphur, used alone or combined in the form of ointments, may remove or temporarily arrest the disease. The occasional application of sapo viridis, followed by the inunction of one of the oils, is often serviceable.

Prognosis.—Prurigo is generally considered incurable, but the milder forms occurring in children are reported by Kaposi to be amenable to treatment.

HERPES.

Herpes is an acute, non-contagious, inflammatory affection, characterized by the development of one or more clusters of vesicles, seated upon a somewhat reddened base.

Symptoms.—The eruption may be preceded by chilliness, headache, and fever, or it may be developed without any constitutional symptoms. Again, it may appear in connection with fevers or other diseases, or exist alone; or commence or be preceded by sensations of heat, burning, and itching. Sometimes it is accompanied with pain. The lesions appear as vesicles, from the size of a pin's head to a split pea, situated upon a reddened base. They are usually few in number, and arranged in clusters. They generally contain a serous or purulent fluid, and seldom burst, the contents usually drying into yellowish or brownish crusts, which fall off, exposing a reddened and afterward normal skin. An excoriation occasionally results from rubbing or interfering with the vesicles, but it also heals kindly, cicatrices rarely resulting. Herpes is an acute affection, lasting about one week, and liable to relapses. It is divided into several varieties, according to the location and arrangement of the lesions, which may be separately described as follows:

Herpes Facialis.—Herpes occurring on the face is also known as herpes or hydroa febrilis, and fever-sores. It may be observed upon any part of the face, as the forehead, cheeks, ears, eyelids, cornea, and chin. The lips, especially the upper, are a favorite point of attack; the vesicles being small, few in number, and forming generally but one group. They may continue isolated, or they may run together. They may also involve the mucous membrane of the anterior nares, the mouth, and tongue. They develop and run their course in the manner already described, except when the mucous membrane is affected, when, owing to its delicate structure and the heat and moisture present, they usually rupture early, exposing an excoriated patch, or patches, covered with a purulent secretion, or with a yellowish or brownish crust.

Herpes facialis may follow cold, pneumonia, fever, or any impairment of the mucous membrane of the respiratory or digestive tract. Relapses are frequent.

Herpes Iris.—This variety is similar in many respects to erythema multiforme. It begins as one or more vesicles, or vesico-papules, arranged in the form of a ring on the dorsal surfaces of the hands and feet. At times two or more rings develop, and the changes which they undergo give the patch a varied hue, resembling somewhat the colors of the rainbow, whence the name iris. Occasionally the vesicles run together, forming large bullæ. It is one of the rare forms of herpes, occurring most frequently in young persons in spring and autumn. The subjective symptoms of itching or burning are not, as a rule, marked, and in some cases are absent. The eruption usually disappears in one or two weeks, but the skin remains pigmented, and relapses may occur.

HERPES PROGENITALIS.—This is also known as herpes præputialis. It occurs in the male, ordinarily on the prepuce, either on the external or internal surface, and on the glans and other portions of the skin of the organ. In the female the disease is more rare, and appears about the vulva, especially upon the labia majoræ and minoræ. The eruption is generally observed in young people and during adult age. It is preceded or accompanied with itching and burning, and at times with neuralgic pains, followed by the development of one or more clusters of vesicles, seated upon an inflamed base. The lesions may be few or many, and are about a pin's head in size. They may be accompanied with much inflammation, leading, in addition, to more or less swelling. The lesions occasionally dry up, and the resulting crusts fall off in one or two weeks. As a rule, owing to the heat and moisture present around these parts, the vesicles burst within a very short time after their formation, and serum, pus, or blood, is poured out upon the surface. The excoriations and superficial ulcers which result are covered with serous, bloody, or purulent exudation, or with a crust, and may, from their appearance, be mistaken for syphilitic lesions. The diagnosis becomes at times even more perplexing, from scratching or irritating applications, leading to severe inflammation and hardening of the tissues and enlargement of the inguinal glands, simulating chancre or chancroid. An accurate and positive diagnosis can, in the above condition, only be obtained by inoculation, or by treating the case for a time and awaiting the result. If the disease is herpetic, it will yield under simple treatment within a few days or a week's time, but if, on the contrary, it be syphilis, little or no impression will be made from simple applications. Herpes progenitalis is liable to frequent relapses. It may arise from gastric or intestinal disturbance, and follows often from coitus, particularly in those having a long prepuce. It is apt also to develop in those who have suffered from gonorrhœa, chancroid, and chancre.

HERPES GESTATIONIS.—This form of herpes occurs during or after pregnancy. It appears on the extremities as vesicles, papules, or bullæ, attended with itching and burning. The vesicles, which are the most predominant lesions, are ordinarily grouped, and vary in size from a pea to a walnut. It may be complicated with urticaria, neuralgia, and other diseases of a similar nature. Relapses tend to follow with other pregnancies.

HERPES ZOSTER (*Synonyms:* Zoster; Zona; Ignis sacer; Shingles).—In herpes zoster or shingles the lesions are similar to those already described, but the groups of vesicles differ somewhat in their arrangement. They develop along the course of, or near, several cutaneous nerves, often extending around one half of the body. The disease is often preceded or ushered in by constitutional symptoms of varying severity. Pain of a neuralgic character may occur for days, and rarely weeks, but commonly some hours, before the appearance of the eruption, or it may be altogether wanting. If present, it may be felt over the entire affected surface, or it may be limited to one or several points. It is generally severe, and is a prominent symptom, and may be of a lancinating, smarting, or burning character. The eruption appears first as a patch or patches of reddened skin, surrounding the seat of pain. Sooner or later there occur one or more groups of red papules, which develop into vesicles, generally discrete, but occasionally they may coalesce, developing bullæ. The lesions thus formed are usually in size from a pin's head to a split pea. Successive crops of the vesicles continue to form from time to time during the course of the disease, and undergo their respective changes, giving a different appearance to the lesions in different parts of the patch or patches. In the course of three or four days after the appearance of each group of vesicles, their contents become opaque, and in time purulent. In one or two weeks they have dried into yellowish-brown crusts, which fall off, exposing a normal, pigmented, or more or less scarred, state of the skin. The vesicles show no inclination to burst, as in eczema; they are deeply located, and remain until they dry up, unless interfered with. In some rare cases the contents of the lesions may be discolored by an effusion of blood into them (herpes zoster hæmorrhagicus). They may run the usual course of the eruption just referred to, or they may burst, leaving an ulcerating surface, which is followed by cicatrization. Ulceration and cicatrization may also result from scratching or rubbing the patch. Occasionally the initial lesions forming the papules do not pass into vesicles, but gradually disappear, with desquamation; this is known as the abortive form of the disease.

Herpes zoster is an acute affection, and, according as it is slight or severe, it may run its course in from one to two weeks, or longer. It occurs equally in both sexes, but more frequently in the young, especially during atmospheric changes. It may attack almost any part of the body, but it has a predilection for certain regions, as the face, shoulders, back, abdomen, and upper portion of the thigh. It is usually limited to one half of the body, especially the right side, but at times, and rarely, it may be bilateral. It very seldom attacks the patient a second time. The neuralgic pains and burning, as a rule, disappear with the appearance of the eruption, but they may persist during its entire course, or remain for a long time after all traces of the disease have vanished, especially in elderly people. And to this great annoyance there may also follow, particularly in the same class of persons, anæsthesia of the region involved, local paralysis, muscular atrophy, and falling out of the hair and teeth. The eye may also at times be involved in zoster of the orbital region, followed by inflammation of the organ and loss of sight, or death. These complications, however, do not often happen.

According to the anatomical region or the nerve-tract invaded the disease is named: Z. frontalis, Z. ophthalmicus, Z. auricularis, Z. facei, Z. occipito-collaris, Z. cervico-subclavicularis, Z. cervico-brachialis, Z. pectoralis, Z. lumbo-femoralis, Z. sacro-ischiadicus, Z. sacro-genitalis, etc.

Of all the above varieties, the most common is that affecting the chest and abdomen.

Diagnosis.—Herpes is not often confounded with other diseases. It may bear some resemblance to eczema, but the vesicles are larger, differently arranged, and tend to dry up, symptoms which serve to distinguish it from the latter affection.

Herpes zoster is to be diagnosed by its history, the premonitory or attendant neuralgic pain, the distribution of the lesions, and the tendency to not rupture. Herpes is also known from herpes zoster by appearing as one group of vesicles, attacking certain regions by preference, as the face and genitalia, with a liability to relapses—diagnostic points which are wanting in herpes zoster.

Pathology.—Herpes, and especially zoster, is due to irritation or inflammation of the sensitive nerves or ganglia, the Gasserian, or spinal, being especially affected. Bärensprung, who probably made the most extensive investigations of this disease, first demonstrated its seat in the nervous system, and particularly involving, in zoster, the spinal ganglia. Wyass showed in a fatal case of zoster facialis the Gasserian ganglion softened and altered, together with inflammatory changes along the nerve after entering the ganglion. Similar pathological changes in the sensitive nerves and the Gasserian and spinal ganglia have been pointed out by other observers. Kaposi, from his investigations, has concluded that the disease is not always occasioned by inflammation of the ganglia, but that it may arise in the nerve, often at its peripheral distribution, and it may likewise be spinal or cerebral in origin. Microscopic examination of the vesicles in zoster shows that they are developed in the rete. Bärensprung, in his examinations, found in the affected part the papillæ enlarged, the blood-vessels dilated and infiltrated, with new cells extending even into the corium and the subcutaneous tissue. Spindle-shaped cells were noted also, passing from the papillæ into the rete, which were pushed aside, the latter being thus made to appear linear in form. The nerve at the site of the eruption was found to be attended with inflammatory changes, the neurilemma being filled with cell infiltration.

Etiology.—Herpes occurs mostly in those possessing an irritable or a delicate skin. It may be due to a variety of causes, but chiefly to some derangement of the mucous membrane of the respiratory, digestive, or genito-urinary tract. It frequently results from cold, atmospheric changes, nervous depression, and from injury to the nerves from blows or pressure, and from the direct action of local irritants on the skin. Zoster has been observed to follow the inhalation of carbonic-oxide gas, and from the internal use of arsenic.

Treatment.—The exciting cause, if found, should be removed. Aperients and diaphoretics may be useful, as well as occasional blood-letting. Opiates, bromides, or chloral may also be necessary to relieve the pain, particularly in zoster. The latter is often greatly ameliorated by hypodermatic injections of one quarter to half a grain of sulphate of morphia with one eightieth of a grain of sulphate of atropia. The phosphide of zinc, given in one-fiftieth-grain doses, every three or four hours, may also alleviate all the symptoms. Iron, quinine, arsenic, and the various bitters or the mineral acids, are remedies that can be resorted to, according to the indications. A course of cod-liver oil may prove beneficial. The local treatment is especially useful. The object should be to protect the lesions, prevent their rupture, and all irritation which may follow. Dusting-powders are valuable, both for the protection which they afford and for the medicinal action which they have upon the resulting excoriation. They are particularly to be recommended for use in herpes of the genitals. They not only are the best means of medicating these parts, but, in instances in which it may be a question of the lesion being specific or not, the application of a dusting-powder speedily settles all doubt. If the lesion is herpetic, the dusting-powder usually causes it to rapidly dry up and disappear, while but little change will be observed should the disease be of specific origin. The subnitrate of bismuth, lycopodium, carbonate of zinc, calomel, alone or combined with some other powder, the oleate of zinc, and powdered red cinchona bark, are all useful applications. It may be well to add morphia and camphor if there be much pain.

Compression with a bandage, or a simple or medicated plaster, is a most useful means of relieving herpes. Sometimes herpes of the lip is better treated by applying a plaster at once to the part. It lessens the irritation, and often speedily gives relief. Simple absorbent cotton, or borated cotton, is a valuable application, particularly if the lesions have ruptured. Anodyne lotions, containing lead-water and laudanum, belladonna, and witch-hazel, are valuable. Astringent lotions of tannic acid, alum, sulphate of zinc, or boracic acid, are frequently better borne, especially if the part has become excoriated. Sedative or astringent ointments, containing any of the ingredients just named, may be employed.

The use of the galvanic current applied directly to the affected nerves, every day, will often lessen or relieve the pain of zoster.

Prognosis.—The prognosis is favorable, except in orbital zoster, which it is said may occasionally be fatal. The other varieties disappear in one or more weeks, but they are liable to relapses.

Herpes zoster may be persistent, often continuing for some time, and disappearing, to be followed by a relapse. Obstinate neuralgic pains may also occasionally remain in the part for months or years after the eruption has been removed.

MILIARIA.

Synonyms.—Miliaria rubra—Miliaria alba—Lichen tropicus—Prickly heat.

Miliaria is an acute inflammatory affection of the sudoriparous glands, characterized by the formation of numerous minute papules or vesicles, and accompanied by marked prickling, tingling, or burning sensations, and more or less itching.

Symptoms.—The eruption of miliaria usually appears without any premonitory symptoms. In the majority of cases it consists entirely of papules. It may, however, be purely vesicular in character, or it may consist of both papules and vesicles.

The papular variety is sometimes termed lichen tropicus, from its frequent occurrence in tropical climates, but it is popularly known as prickly heat. It is characterized by the sudden development of a number of exceedingly minute papules. They are acuminated in form, and bright-red in color. They vary in size from a small pin's head to a grain of mustard-seed. They are situated around the orifices of the sudoriparous ducts, and are slightly elevated above the surrounding surface. They are usually developed in great numbers, and are closely set together. They do not coalesce, but remain discrete throughout their existence. They may appear upon any portion of the body, and in severe cases not infrequently involve the entire surface. They are most frequently observed, however, upon the scalp, neck, chest, back, and arms. They generally remain for a few hours or days, and then disappear as suddenly as they came. In severe cases they may be present for several weeks. Relapses are of frequent occurrence.

The eruption is almost invariably preceded and accompanied by marked increase of sweat. In some exceptional cases the secretion of sweat is notably diminished.

The entire cutaneous surface upon which the papules are developed is intensely reddened, and is the seat of more or less itching, stinging, and burning sensations. The eruption may be complicated by the formation of vesicles and vesico-papules.

The vesicular variety of miliaria is characterized by the development of a number of exceedingly small vesicles, which are acuminated in form and surrounded by an erythematous areola. They are transparent at first, and contain a drop of clear serous fluid, but become opaque or yellowish in a few days. They generally occur in large numbers, and are placed close together. They may appear upon any portion of the body, but are most frequently observed upon the neck, chest, back, and arms. They run an acute course, usually terminating in absorption and desquamation in a few days. The eruption is accompanied by itching and burning sensations, which are sometimes so severe that the patient tears the skin and ruptures the vesicles in order to obtain relief. The crusts which are formed by this procedure are small in size and insignificant in character, and usually disappear by desquamation in a few days. Relapses may occur, however, and protract the disease for several weeks. I have seen cases in which the eruption recurred at intervals for four months before it finally disappeared.

Diagnosis.—The only affection which presents any resemblance to the papular variety of the disease is eczema papulosum, but the distinction between them can readily be made by considering the history, course, and subjective symptoms of each. The papules of miliaria appear suddenly during intensely hot weather. They are exceedingly numerous and closely set together, but never coalesce to form large patches. They are usually accompanied by excessive perspiration and marked stinging, prickling, or burning sensations, and more or less itching. They are ephemeral in character, and ordinarily disappear as soon as their exciting cause is removed. The papules of eczema occur more frequently during winter than in summer. They are comparatively large in size and few in number, and are not as closely aggregated as in miliaria. They are developed slowly, and manifest a tendency to remain for weeks. They are not accompanied by any increase of perspiration, or by the characteristic prickling of miliaria. The itching in eczema, however, is distressingly severe.

The vesicular variety of miliaria may be mistaken for sudamina or for vesicular eczema. In sudamina, however, the lesions usually appear as pearl-colored drops of sweat beneath the superficial layers of the epidermis, and are rarely elevated in the form of vesicles. They are not accompanied by any inflammatory or subjective symptoms, and disappear by absorption, without any noticeable desquamation. In miliaria vesiculosum the vesicles are numerous and well defined. They are surrounded by an inflammatory areola, and are accompanied by marked prickling, burning, and itching sensations. In eczema the vesicles are not surrounded by a distinct areola, but are situated upon an intensely reddened surface. There is intense itching, and they usually rupture spontaneously, terminating in the formation of crusts, beneath which more or less exudation occurs. In some cases the vesicles become transformed into pustules. In miliaria, however, the vesicles never rupture spontaneously, or become pustular, but usually disappear by absorption as soon as the exciting cause has ceased to act.

Pathology.—The pathological process concerned in the production of the lesions of miliaria consists of active hyperæmia of the vessels of the sudoriparous glands, producing, primarily, a marked increase of the sudoriparous secretion, and, secondarily, more or less exudation into the substance of the glands and their ducts, and into the surrounding tissues. If the exudation is small in amount, the resulting eruption is papular in character; if it is large in quantity, vesicles are formed. When the hyperæmia subsides, the exudation is absorbed and the eruption disappears.

Etiology.—Miliaria is produced by exposure to unusual heat. It may happen in tropical climates at any time during the year, but in countries situated in the temperate zone it is met with only during warm weather. It may be developed or aggravated by wearing too heavy or too light clothing.

The corpulent and children are most liable to the attacks of the papular variety. According to my experience, it is much more prevalent in subjects of nervous temperament and fair complexion than in those of lymphatic disposition and dark complexion. As those who are subject to it are usually in robust health, its appearance is frequently regarded by the laity as "a healthy sign."

Weak and anæmic persons are more subject to the vesicular variety than the stout and well-nourished. It is often observed in pale, overworked women, and in puny, ill-fed infants and young children.

Treatment.—The majority of cases of papular miliaria require no treatment other than the substitution of light for heavy under-clothing, and the frequent application of cold water to the seat of the eruption. In obstinate cases, or in very fat persons, the bowels should be freely opened with saline cathartics, and meats and condiments excluded from the diet for a few days. Acidulated drinks may be partaken of with advantage. Chalybeate and other tonics may be employed with benefit in the vesicular form of the disease when it occurs in debilitated patients.

The best local treatment consists in the free application of cold water, after which the parts should be mopped dry with a soft cloth, and dusted with bismuth subnitrate or oxide of zinc. If the itching and stinging be severe, immediate relief can usually be obtained by the use of a lotion containing two grains of carbolic acid to an ounce of water. Good results can also be derived from the use of the ordinary officinal peppermint-water, or from a solution of menthol, five grains to the ounce. In India, a lotion composed of ten grains of sulphate of copper to the ounce of water is much employed. Aqua creasoti will also be found palliative. Lotions of alum, or of sulphate of zinc, or of acetate of lead, are serviceable occasionally. In some cases soothing ointments will be found more available. The ointment of the oleate of bismuth is especially valuable.

Prognosis.—The prognosis is always favorable. The eruption speedily disappears as soon as measures are taken to counteract the effect of the excessive heat.

PEMPHIGUS.

SYNONYM.—Blasenausschlag.

Pemphigus is an acute or chronic disease, characterized by the successive development of variously sized and shaped bullæ, which are filled with a colorless or yellowish serous liquid. It mostly runs a protracted course, and in subsiding leaves on the skin only dark stains.

Symptoms.—There are two varieties of pemphigus, namely, pemphigus vulgaris and pemphigus foliaceus, each of which, on account of the marked variation in their symptoms, requires separate consideration. The former, which is most frequently observed, is generally either acute or chronic, while the latter, which is very rare, is at all times chronic.

PEMPHIGUS VULGARIS.—The disease may be either acute, pemphigus acutus; or chronic, pemphigus chronicus. The acute variety occurs usually in children, sometimes in the form of an epidemic, and runs its course in from two to three weeks. The chronic form is the one most frequently observed, especially in the adult. The disease may be ushered in without any prodromal, or with mild or severe constitutional symptoms. If constitutional symptoms are present, they may simply consist of a feeling of lassitude, or of chilliness or rigors, headache, pains through the body, quick pulse, occasionally delirium, and irritability of the mucous membrane, especially of the stomach. Fever, if present, usually ceases with the subsidence of the eruption, to again return on a fresh outbreak. The eruption may appear first in the form of erythematous spots or wheals, on which blebs develop. At other times blebs may form at once on the skin, and neither be preceded by erythematous spots or wheals. The formed blebs are seldom accompanied with any inflammation, their bases only being reddened, and the encircling skin normal or slightly erythematous. They may be attended with itching and burning, the former sensation being usually more marked. Occasionally both these symptoms may occur to a decided degree, leading to great suffering; this form of the disease is spoken of as pemphigus pruriginosus. The blebs may develop rapidly or slowly, and may attack all portions of the skin or mucous membrane. The scalp, the palmar and plantar surfaces, and the conjunctivæ * are, however, rarely invaded. In number the blebs vary from one to many, and they may be isolated or arranged in groups. In size they range from a pea to a hen's egg, or larger. In form they are mostly hemispherical or oval, but if they become confluent their shape is destroyed. Their walls are tense at first, but by absorption of the poured-out fluid they may become somewhat flabby. Their contents are at first clear, or opaque, but they gradually become in time sero-purulent. In some instances they present a reddish or dark appearance, from blood being effused into them. They run their course in from two to eight days, and are succeeded by successive crops of new blebs. They disappear, as a rule, by absorption, their walls becoming shrivelled, with newly formed epidermis beneath. At times they burst, developing excoriated surfaces, or, after rupturing, their contents may dry into thin scabs. Dark stains are always left, for a long time, to mark their location. The skin in pemphigus may, therefore, present the characteristic appearance of being covered with few or many blebs, in their various stages of formation, with excoriated spots, thin scabs, and dark stains. The course of the disease will largely depend upon the state of the patient's health, which influences the development of either benign or malignant pemphigus. The former is of a mild type, and usually runs its course rapidly. In the latter variety, the blebs are large in size and number; they develop rapidly, coalesce, dry up, or rupture, discharging puriform or bloody exudation; crusts form, and perhaps excoriated or ulcerated surfaces result. The subjective symptoms of itching and burning are markedly severe, the health becomes undermined, and death often follows, especially in cachectic patients.

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* Cohn describes only one case in 50,000 eye-patients.—*Breslauer aerzt. Ztsch.*, 1885.

Pemphigus Foliaceus.—This variety of pemphigus is exceedingly chronic. It usually appears as one or more bullæ on the front of the chest, which are not tense, as in pemphigus vulgaris, but flaccid, the fluid tending to burrow beneath the epidermis, instead of elevating it in blebs. These imperfect formations are the characteristic features of the disease, and contain a milky or yellowish-red fluid. The bleb, or blebs, thus formed is succeeded by others, which develop around or unite with them; or the primary bleb, by peripheral extension, spreads. The contents are poured out by the rupturing of the bullæ, and dry into thin and friable crusts. The epidermis hangs in shreds from the excoriated surface, giving it the appearance of a superficial scald. It seldom reforms on the invaded part, or, if it should, it is removed by successive formations of blebs. The disease gradually, as the bullæ increase and multiply, spreads until the entire body is involved. The epidermis no longer forms a sufficient covering, the surface becomes the seat of fissures, with here and there crusts, and the movements even are painful. The hairs become thin and fall out, the eyelids ectropic, and the nails friable. The general health is decidedly interfered with, usually after the disease has lasted for some time. Sleeplessness, fever, loss of appetite, diarrhœa, and other serious systemic disturbances follow, which may ultimately terminate in death.

Diagnosis.—The diagnosis of pemphigus, when fully developed, is not, as a rule, difficult. It must, however, be remembered that the mere presence of blebs is not always indicative of pemphigus. They may be produced by artificial means, and in the course of certain diseases, such as scabies, eczema, syphilis, herpes iris, impetigo contagiosa, erysipelas, urticaria, and leprosy. They may be caused by friction and pressure, as from walking, riding, rowing, and wearing tight apparel or bands, or from applications to the skin, of chemical substances, as nitric acid. The non-existence of successive outbreaks of blebs over a large surface, and the absence of depression, weakness, and emaciation, attendant, as a rule, upon pemphigus, will usually establish the diagnosis. In case of doubt, the opinion should be suspended and the patient carefully watched, to decide whether the eruption is the result of accident or design, in order to feign disease.

Scabies may at times simulate pemphigus. The history of scabies, its contagiousness and peculiar predilection, and possibly the recognition of the burrows and the itch-mite, point at once to the nature of the disease. Eczema rubrum may be confounded with chronic pemphigus foliaceus; the denuded surface, covered, perhaps, with more or less crusts and scales in both diseases, might readily lead to a mistake in diagnosis. The characteristic constitutional symptoms in pemphigus, with possibly the successive outbreak of the blebs, the slight itching, and the absence of infiltration, with the deeply pigmented skin, cause the disease at once to be recognized. Syphilis may give rise to a bullous eruption, which is incorrectly called syphilitic pemphigus. The use of the latter term should always be avoided, as it implies a connection between syphilis and true pemphigus, which is erroneous. In syphilis the blebs dry into thick, bulky, greenish crusts, beneath which exist excoriations or ulcers; in pemphigus these conditions are wanting. In herpes iris the bullæ may likely be mistaken for pemphigus. Herpes iris is always an acute affection, continuing usually a few weeks; pemphigus is mostly a chronic disease, lasting for some time. In herpes iris severe systemic symptoms are absent, and the eruption occurs generally on the arms, hands, and feet; in pemphigus constitutional symptoms exist, often severe, and the disease has no particular seat. Again, in herpes iris the vesicles and blebs are of varied colors, being arranged concentrically, and surrounded by an erythematous areola; in pemphigus there is an absence of color, the lesions are not arranged concentrically, and the surrounding skin is usually normal. Impetigo contagiosa may bear a close resemblance to pemphigus, but the absence of constitutional symptoms in the former, and its tendency to involve the lower extremities, with the slow course of its lesions, should assist in distinguishing it from pemphigus. In erysipelas the development of blebs is not uncommon, but the course of the eruption, which is so distinct from pemphigus, enables its real nature to be detected. Blebs may occasionally develop in urticaria, but the occurrence also of ordinary wheals should clearly demonstrate the disease. The blebs of leprosy are usually attended with cutaneous anæsthesia and other characteristic symptoms which are not present in pemphigus.

Pathology.—The formation of the bullæ may be preceded by hyperæmia, or they may appear before any congestion can be detected. Their contents, in the early stages, are a colorless or yellowish fluid, which consists of serum, epithelial cells, and sometimes blood-corpuscles, pus, and fatty acid crystals. Some observers have also claimed to have discovered free ammonia and uric-acid crystals. The fluid is either neutral or alkaline in reaction, and becomes more alkaline as it becomes older. Jarisch gives its specific gravity as 1·0196, and adds that it is composed of 941·9 parts of water and 58·1 parts of solid matters. A microscopical examination of the blebs, in chronic pemphigus, shows that they exist between the rete cells, or between them and the corium. The lower rows of rete cells may remain normal, or be destroyed. The bullæ, after having attained a certain size, usually consist of but one chamber, but they may be divided into compartments by bands of a fibrinous material. The corneous layer, as a rule, is normal, but the papillæ and blood-vessels are enlarged, and the corium and subcutaneous tissue are infiltrated. In pemphigus foliaceus, Neumann also discovered "the connective-tissue bundles of the cutis thickened, the rete cells clouded by finely granular masses, the sweat-glands enlarged and filled with necrotic cells, the excretory ducts dilated, and the horny layer imperfect." In fatal cases an examination may show general anæmia, flabbiness of the muscles, œdema of the brain and lungs, and chronic degeneration of the liver, spleen, and kidneys.

Etiology.—Pemphigus is a non-contagious and rare affection. It is met with in all countries, but more frequently in Europe than in the United States. Its causes are obscure. It is more common in infants and children than in adults. After childhood it occurs with equal frequency at all periods of life. It affects alike both sexes, except in pemphigus foliaceus, which is said to be more frequent in women than men. Occasionally it has been known to be hereditary. It is prevalent at all seasons of the year. Atmospheric conditions do not appear to influence its production. Unsuitable diet may assist in developing it. It arises, as a rule, from a depraved state of the system. This condition may be caused primarily through the blood, as Barensprung believes, or it may be due directly to an impairment of the nervous system. Jarisch has shown the connection with the latter, in a case in which he discovered anatomical changes in the spinal cord. Dejerine and Leloir have also demonstrated its relationship with the nervous system as manifested by changes in the peripheral nerves. Mental worry, overwork, excesses, exhaustion, and menstrual troubles are fruitful causes of its development.

Treatment.—Both local and constitutional treatment are necessary. Attention to hygiene and rest, with freedom from all excitement, are essential. The food should be of the most nutritious nature, and should consist principally of meat, eggs, and milk. Attention should also be directed to correcting any functional derangement, and remedies given which will overcome debility and tone up the system. Spirituous and malt liquors, the preparations of malt, and the oils, particularly cod-liver oil, or substances containing oil, as linseed-meal—used successfully by Sherwell—are very good for this purpose. The general tonics, the mineral acids, the preparations of ammonia, are sometimes indicated. In the acute forms, in which the febrile symptoms are severe, it may be necessary to have recourse to general blood-letting, with purgatives and antiphlogistic regimen, so well advised by Wilson. Pain, if present, may be counteracted with an opiate, particularly in the form of a hypodermic injection of morphia. All complications which may arise are to be treated according to the indication in each case. Arsenic is effective, especially in the form of small doses of sodium arsenite. Hutchinson reports the curative action of arsenic, and believes it acts almost as a specific for the disease. Quinine, in full doses, is a valuable remedy, as well as hydriodate of potassium, which was recommended by Wilson. T. McCall Anderson* recommends quinine and arsenic as being more certainly effectual if injected subcutaneously. Potassium chlorate has been used with benefit by Barensprung, and I have also found it a useful remedy in large doses. Tilbury Fox likewise employed potassium chlorate from the outset of the disease, in children, with quinine and wine.

Local treatment is of great advantage, in at once relieving the discomfort produced by the eruption. The blebs should first be punctured, and the contents permitted to escape. This operation is needful, in order to bring the elevated epidermis in contact with the corium, and thus prevent the blebs from rupturing spontaneously and causing excoriations. A dusting-powder, of equal parts of starch and the impure carbonate of zinc, or one more stimulating and astringent, as three parts of starch to one of powdered zinc oleate, should then be applied over the surface.. It is sometimes more beneficial to first use either a lotion or an ointment, and afterward dust the powder over the surface. Lotions of tincture of witch-hazel, fluid extract of arnica, likewise of grindelia robusta, the tincture of opium, lead-water, and chlorate of potassium may be used; the latter being especially serviceable when the mucous membrane of the mouth is involved. Ointments of zinc, lead, and bismuth are also useful. If the blebs have burst, and excoriations resulted, the same applications are also recommended. If the sores persist, a weak mercurial ointment—five or ten grains of calomel to the ounce—may be applied, or they may be touched with lotions of two to ten grains of silver nitrate or zinc sulphate to the ounce. Baths, either simple or medicated, are frequently of service, particularly if there is much irritation or inflammation of the skin. The bath may be either warm or tepid, or made emollient by starch, bran, or gelatin, or alkaline by bicarbonate of sodium. The bath of corrosive chloride of mercury—one to two drachms of the salt being sufficient—has been of advantage. The liquid-tar bath has also been recommended, especially in pruriginous pemphigus. Severe cases are benefited by the constant application of one of the ointments already alluded to, or by the continuous water-bath, as recommended by Hebra and Kaposi. The latter, however, is not well borne by all cases, and, when it is, can only be practically used in hospitals. It requires a bath-tub specially arranged, in which the patient eats and sleeps.

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* A Treatise on Diseases of the Skin, by T. McCall Anderson, M. D. London, Charles Griffin & Co., 1887.

Prognosis.—Pemphigus is an obstinate and at times a fatal disease. The prognosis, however, depends much upon the variety, being more favorable in pemphigus vulgaris than in pemphigus foliaceus. In the former, occurring in young and vigorous persons, if the lesions appear slowly and are not attended by fever, the result is, as a rule, favorable. In old persons, on the contrary, or if attended in the young with bronchial, intestinal, or kidney complications, the termination may be fatal. The prognosis is also unfavorable in cases attended with continuous fever and debility, and in which the blebs appear in numbers, rapidly and successively, and whose walls are flabby and tend to rupture. The disease is liable to frequent relapses.

HYDROA.

SYNONYMS: Pemphigus prurigineuse—Herpes gestationis—Herpes circinatus bullosus.

Hydroa is an acute or chronic inflammatory cutaneous affection, characterized by the appearance of circular erythematous patches of various sizes, upon which vesicles or bullæ become developed. It is accompanied by intense itching and more or less constitutional depression.

Symptoms.—Hydroa is usually preceded by general malaise, loss of appetite, and various gastric disturbances. The eruption is more or less symmetrical in character, and usually commences as small, red, circular spots, which itch intensely. They rapidly increase in size, and become slightly elevated above the surrounding surface, assuming a papular or semi-papular form. Occasionally adjacent spots mingle and form large, irregular patches. They may appear upon any portion of the body, but are more frequent on the face and the extremities. After a period, extending from a few hours to several days, a number of vesicles may be observed upon each erythematous area. They are arranged in groups, frequently coalesce and form large bullæ, from half an inch to an inch in diameter. The further course of the eruption varies in different cases. The vesicles and bullæ may disappear by resolution, they may rupture spontaneously and terminate in the formation of crusts, or they may be ruptured by the patient while scratching. In rare cases they become transformed into pustules, which finally break down and cover the surface with yellowish or greenish crusts. The eruption may pursue an acute course, but it usually remains with remissions and exacerbations for several months, or even for two or three years. It is always accompanied by marked itching and burning sensations, and various symptoms of nervous depression or general debility. It may occur at any age and in either sex. It is not infrequently observed during pregnancy.

Diagnosis.—The affections from which hydroa is to be distinguished are herpes zoster, herpes iris, pemphigus, and varicella. In herpes zoster the vesicles are seated upon a reddened base, but they are usually small in size, and are developed over the course of the peripheral nerves. In hydroa the lesions consist of large vesicles or bullæ, and are not limited to the track of the nerve-supply. In herpes zoster there is little itching, but the pain is intense, and the lesions are almost invariably limited to one side of the body. In hydroa the pain is trivial, but the itching is violent, and the eruption appears on both sides of the body. Herpes iris frequently closely resembles hydroa, but the concentric character of the rings, and the absence or trivial character of the itching, will prevent any error from being made. The large bullæ of hydroa have been mistaken for those of pemphigus. In pemphigus, however, the itching is seldom marked, and a fatal result not infrequently ensues. In hydroa the itching is intense, and recovery is the rule. The vesicles of varicella present a superficial resemblance to those of hydroa. Varicella, however, is a disease of childhood, characterized by the development of a variable number of isolated disseminated vesicles, accompanied by elevation of temperature, but unattended by marked itching. Hydroa usually appears during adult life, the vesicles are grouped, there is no fever, but the itching is intolerable.

Pathology.—Reflex irritation of the peripheral nerves is probably an important factor in the production of the various lesions of the disease. The capillary vessels of the corium become dilated, and an extensive exudation of serum occurs, resulting in the infiltration and elevation of the papillary layer, and the formation of vesicles and bullæ.

Etiology.—Hydroa is probably neurotic in origin, and dependent upon mental depression or anxiety. It is usually associated with evidences of general debility or ill-health. In some cases it is apparently due to malarial infection. When it occurs in pregnant women, it may be symptomatic of an irritable condition of the nervous system, dependent upon impoverished blood.

Treatment.—The treatment should be directed to improving the general nutrition of the patient, and removing any sources of irritation that may be observed. The patient should be placed upon a diet of milk, eggs, fruit, and bread. All the bodily functions should be regulated, and exercise taken daily in the fresh air. In cases in which a malarial origin is suspected, quinine may be given in large doses. In those in which nervous depression is the most prominent symptom, the best results can be obtained from the administration of nux vomica and phosphoric acid. Anæmic individuals will be benefited by the various chalybeate preparations. According to Crocker,* arsenic and belladonna exercise almost a specific effect upon the disease. In a well-marked case which recently came under my observation, the eruption disappeared rapidly under the administration, after meals, of three minims of Fowler's solution combined with one minim of tinct. opii deodorata and half a minim of tinct. capsici. The intense itching can usually be rapidly relieved by the application of lotions or ointments of carbolic acid and other anti-pruritics.

Prognosis.—The prognosis is ultimately favorable. The eruption sometimes proves obstinate to treatment, but it finally disappears when the general health improves, or when the source of irritation is removed.

POMPHOLYX.

SYNONYMS.—Dysidrosis—Cheiro-pompholyx.

Pompholyx is an acute, exudative, cutaneous disease, characterized by the formation of a variable number of deep-seated vesicles, which terminate in a few days by spontaneous rupture or absorption, and are followed by slight desquamation of the epidermis.

Symptoms.—The eruption is symmetrical in character, and is usually limited to the sides of the fingers and the palms of the hands. It may, however, appear upon the soles of the feet and other portions of the body. At first they are minute, isolated, transparent vesicles, deeply imbedded in the skin. They slowly increase in size, and become whitish or opaque, resembling grains of rice or sago beneath the epidermis. The process may be arrested at this stage, and resolution take place by absorption. Generally, however, the exudation continues, the vesicles increase in size and are elevated above the surface, and may even coalesce and form large bullæ. In a few days the fluid begins to disappear by absorption, or the walls of the vesicles and bullæ rupture and the contents escape. More or less desquamation of the epidermis follows, resulting in the exposure of a reddened, abraded, non-discharging surface, which rapidly heals. The eruption is usually accompanied by slight itching and burning, and more or less nervous depression.

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* "British Medical Journal," May 22, 1886.

Diagnosis.—Mild forms of this affection might be mistaken for sudamina, but the presence of more or less itching and burning will suffice to make the diagnosis. Severe cases may present a slight resemblance to eczema vesiculosum. In eczema, however, the subjective symptoms are more intense, the surrounding surface is hot and erythematous, and the rupture of the vesicles is followed by the formation of crusts and the exposure of an exudative surface.

Pathology.—Fox and Crocker believed this affection to be due to retention of sweat and dilatation of the sweat ducts or glands, and termed it dysidrosis. Robinson,* however, has shown that these structures are perfectly normal, and that the vesicles are formed by an exudation of serum from the papillary vessels into the deeper layers of the rete mucosum.

Etiology.—The etiology of pompholyx is unknown, but it is probably associated with some disturbance of the nervous system.

Treatment.—According to Robinson, arsenic exercises almost a specific effect, and, when given in time, will invariably abort the eruption. Full doses of Fowler's solution, or arsenious acid, should be given until all traces of the vesicles have disappeared. Quinine, iron, and strychnia, and the mineral acids, will also be found serviceable. A full supply of nourishing food is of the utmost importance.

Locally, any soothing ointments or lotions may be applied to lessen the itching and burning, or to protect the abraded surface.

Prognosis.—The prognosis is always favorable. The eruption disappears, with or without treatment, in a few days or weeks, but relapses may occur at intervals.

ACNE.

SYNONYMS.—Acne disseminata—Acne vulgaris—Acne boutonneuse—Varus-Finnen.

Acne is an inflammatory disease, involving the sebaceous glands, usually chronic in character, and appearing in the form of papules, tubercles, pustules, or abscesses, either alone or combined, and affecting more particularly the face, neck, chest, or back.

Symptoms.—Acne is one of the most common diseases of the skin, existing either alone or in combination with comedo or seborrhœa. It appears in the form of papules, pustules, tubercles, or nodules, from the size of a pin's head to a bean, solid or filled with pus, isolated or arranged in patches. It may occur on any portion of the body excepting the palmar and plantar surfaces, but its chief predilection is for the face, neck, chest, and back.

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* A Manual of Dermatology, by A. R. Robinson, M. D. D. Appleton & Co., New York, 1886.

When it attacks the face, the forehead, cheeks, and chin are the portions usually involved. It may appear on the face and trunk at the same time. In other instances the trunk, arms, and thighs alone will be the seat of the eruption. It is usually symmetrical, but irregular in its distribution. It is observed in both sexes, especially about the age of puberty. It may occur at any time of life, but is rarely seen after youth and middle age.

It may be acute or chronic, the latter being the general rule, successive crops of the eruption appearing, disappearing, and reappearing from time to time for many years. The eruption may be mild or severe—consisting in the former of a few isolated or scattered, pale, bright, or dark-red papules, and in the latter of groups or bunches of papules, of various shades of color, with or without a central point of suppuration—with pustules, nodules, and abscesses, often accompanied by comedo and seborrhœa.

In many cases the disease may be observed in all its stages, from the retention of secretion to the inflammation and suppuration of the glands. The inflammation may be superficial or deep-seated, giving rise, in the latter, to the formation of pustules and abscesses, which will leave the skin marked with indelible scars. These scars may be slight or severe, and when the latter occurs the face, when involved, is very much disfigured. There are several well-marked varieties of the disease.

ACNE PAPULOSA.—In this, the mildest form of acne, the eruption consists of a number of more or less conical, pale-red papules, varying in size from a pin's head to that of a pea. They are generally mingled with comedones, and are scattered over the face, especially around the forehead.

The centre of the papules may present a darkened appearance, exhibiting the opening of the ducts, blackened by dirt and exposure, forming the condition known as acne punctata. The eruption exhibits different degrees of severity in different individuals, from a few irregularly scattered to many papules, and at times associated with pustules, in various stages of development.

ACNE PUSTULOSA.—This is the most frequently observed variety of acne. The lesions vary in size from a pin's head to a split pea. They are in all stages of development, and are generally associated with papules, papulo-pustules, and at times with seborrhœa. The inflammation may be mild or severe, and consequently the amount of suppuration may be slight or abundant, leading to the formation of either small or large pustules. Each pustule contains a drop or more of pus. When the inflammation is severe, abscesses containing a large amount of pus mixed with bloody serum may develop.

The pustules generally form rapidly, and terminate by absorption and desiccation, or burst, and in scabbing over and healing leave behind a slight cicatrix. They are either round or conical in shape, and are surrounded by an inflammatory areola.

If the inflammation is deep-seated, the subcutaneous cellular tissue is involved to a considerable extent, the base of the pustule is hard and indolent, and perhaps purplish, with little or no tendency to suppurate. This condition is known as ACNE INDURATA, and is frequently met with on the face, but more particularly about the submaxillary region.

In consequence of long-continued congestion of the parts, hypertrophic growth of the connective tissue may set in, the skin becomes red, rough, and greasy, the glands enlarge, and small tumors form, giving rise to what is termed ACNE HYPERTROPHICA. At times the acne-spots are succeeded by atrophy of the skin, and they are then named ACNE ATROPHICA.

The eruption, when appearing in strumous, anæmic, and tubercular subjects, is known as ACNE CACHECTICORUM. The lesions generally develop on the trunk and extremities, are dark-red, purplish, or violaceous papulo-pustules, of all sizes, and are noted for their indolent and sluggish course.

ACNE ARTIFICIALIS.—Acne-spots are often developed during the use of various drugs, either internally or externally, as well as by the application of various irritating substances to the skin. Thus, the internal administration of iodine, iodide and bromide of potassium is followed in many persons by numerous crops of papules on the face, neck, back, chest, and at times on the thighs and arms, which may remain unaltered or rapidly change to pustules. Again, the use of certain cosmetics, powders and paints, to the face, neck, and chest, resorted to by ladies, or rubbing the same parts with dyed ribbons or flannel, to give a healthy hue to the countenance, will often cause an outbreak of papules and pustules. The wearing of chest-protectors, bands, and flannel next to the skin, frequently causes an outbreak of papulo-pustules. The use of tar, carbolic acid, and chrysarobin will produce an attack of acne, which will persist until these substances are discontinued. The summits of the papules, in these cases, usually present a black point, corresponding to the duct of the sebaceous gland or hair-follicle, from one or the other of the substances having lodged there. The same effect may be observed in those who work among grease, petroleum products, tar, and arsenic preparations, and especially in dyeing establishments, where woollen fabrics are colored. In many instances the vapor, coming in contact with the skin, is sufficient to set up an irritation and inflammation of the glands, and the development of acne.

Diagnosis.—The characteristic symptoms of acne are so well marked in the great majority of cases as to make the diagnosis simple and easy. The age of the patient, the situation and chronic course of the eruption, the typical, irregular, scattered or grouped lesions, appearing and disappearing, are significant. It might, however, be confounded with papular, papulo-pustular, or tubercular syphilis, variola, eczema, and rosacea. Syphilis and variola may both assume precisely the same appearances as acne. The examination should, therefore, be made with great care, and an opinion only expressed after a thorough study of the course of the eruption. Acne can be distinguished from syphilis by the history and course of the latter, and its tendency to ulceration, and its appearance at the same time in other parts of the body. I have seen subjects, however, in which both affections were commingled, the acne appearing either before or during the eruption of syphilis, and very often hiding the true nature of the latter affection.

It will be found, upon inquiry in these cases, that iodide of potassium, or some medicinal substance, has been taken internally or applied locally, and produced an outbreak of acne. The discontinuance, for a time, of the medicine or local application used, will enable the physician to say which is the predominating affection.

Variola differs from acne in its history, course, and constitutional symptoms. The eruption of variola is first papular, then vesicular, and finally pustular. It is acute in character, preceded by a chill, and accompanied by high fever and other grave symptoms. In acne there are neither vesicles, chill, nor fever, and the eruption pursues a chronic course.

Papular and papulo-pustular eczema may simulate acne. In the former the lesions are not necessarily located in the follicles, and scales and an interpapular infiltration are usually observed, which are not present in the latter.

Rosacea, while being frequently complicated with acne, differs from it by the local congestion which primarily arises without particularly involving the sebaceous glands.

Pathology.—Acne is due usually to a retention of the sebum within the hair-follicles and sebaceous glands connected with them, followed by its decomposition, which often leads to a peri-folliculitis. During the first stage hyperæmia, with exudation and emigration of corpuscles, may take place, followed sometimes with a destruction of the follicles and glands. If the inflammation is active, suppuration generally ensues, resulting at times in induration, hypertrophy, and atrophy of the tissues of the parts. In some cases, as Hebra observed, the sebaceous plug is wanting, and the epidermis lining the follicles appears to be abnormally developed, setting up irritation and occasioning inflammation of the parts around. In others, the changes may occur alone within the sebaceous glands. As a rule, the disease is primarily a folliculitis, and, as Robinson has noted, differs from sycosis, which begins as a peri-folliculitis.

Etiology.—Acne appears in both sexes, and can be induced by either constitutional or local irritation. In many instances it arises from some reflex affection. Among the various internal causes are the physiological changes which take place at the period of puberty, a time when the blood-vessels and nerves of the sebaceous glands and the hair-forming apparatus are especially active. Any constitutional or local irritation that may then arise will very often, more than under ordinary circumstances, excite congestion of the parts, lead to the retention of the sebaceous secretion, inflammation, and the development of the disease.

It is under such circumstances that all debilitating conditions, disorders of organs or portions of the economy which have a reflex action on the face, particularly the gastro-intestinal canal, genito-urinary, and mental troubles, excite and aggravate it. That mental emotions will affect facial circulation is well shown by the sudden dilatation and contraction of the cutaneous capillaries in blushing and in pallor.

Puberty, with the attending physiological changes, therefore, frequently gives rise to acne, especially when some irritation is present, which may continue until the system has passed through this period and has returned to a state of rest.

Again, some persons are born with the organ of the skin naturally weak. The skin is then oily or scaly, or both conditions are combined, from the debility of the glands.

The lymphatic and strumous frequently present this condition of the skin. They are, therefore, prone to acne, and any reflex irritation will lead to the retention of the sebaceous secretion; the glands become blocked up, and inflammation sets in, often with the formation of pus. The amount of pus production will depend upon the intensity of the inflammation and the state of the constitution. In subjects presenting a strumous condition the inflammation is usually severe, the connective tissue around the glands is implicated with a free formation of pus, with resulting atrophy or pitting of the surface. In persons of this diathesis the lesions will usually present the appearance of a scrofulous affection, differing only from ordinary acne by its obstinate and indolent nature, the intense inflammation, the rapid and abundant formation of pus, and the tendency to leave behind indelible cicatrices.

Acne may occur at any period of life, but is more common at puberty. It attacks both rich and poor, regardless of nationality, climate, or complexion, although those having a light skin are more prone to it than those of a dark one. It may be occasioned by debility, anæmia, chlorosis, or from a derangement of the alimentary canal or genito-urinary system.

Experience will point out to every physician that stomachic and intestinal disorders, especially when attended with constipation, and ovarian and uterine affections, will, by their reflex action, cause its appearance. The lesions will abate, to again crop out, depending entirely upon the treatment they receive, whether judicious or otherwise. Patients will, however, occasionally present themselves in whom the physician will not be able to trace the disease to any assignable cause. Acne may also result, as has already been stated, from the internal use of the iodides, bromides, and other medicinal substances. It may likewise be developed by any local irritation, as uncleanliness, the use of caustics, soaps, tar, carbolic acid, chrysarobin, creasote, powders, paints, and various cosmetics. Those who work among oils, dyes, arsenic, and woollen fabrics are often affected.

Treatment.—Although acne is at times a very obstinate affection, nevertheless it can be relieved and cured by good management and patience, both on the part of the physician and patient. The treatment usually pursued is both constitutional and local. In some, attention to the general health suffices; in others, direct application alone answers; while in other instances a combination of both internal and external remedies is required.

Constitutional Treatment.—It is necessary in every case to carefully inquire into the habits of the patient; in fact, to attempt no treatment until it has been satisfactorily settled that the affection is or is not dependent upon an exciting cause. The first point should be an examination into the condition of the alimentary canal, to see if a coated tongue, eructations, diarrhœa, constipation, or one of the many functional derangements of this part of the economy, which are such prolific sources of acne, is an active factor in producing the affection.

To find the cause and remove the lesions, the practitioner must be proficient in the principles of general medicine, and able to apply a thorough knowledge of therapeutics to the case under consideration. If the tongue is furred, small doses of the mild chloride of mercury, blue pill, or mercury with chalk, given alone or in combination, occasionally, with jalap, or compound extract of colocynth, will be found efficacious for the abnormal state of that organ, as well as for constipation often alternating with diarrhœa. The late Prof. Joseph Pancoast frequently prescribed, during my service on his clinic, for similar conditions, with much advantage, the following prescription :

℞ Pilulæ hydrargyri,
Pulveris jalapæ,
Extracti colocynthidis co...... āā gr. xij.
Olei menthæ piperitæ............ gtt. j.
M. Ft. pil. no. xij.

Sig.: One or two pills when necessary, every second or third night on retiring.

Constipation may also be combated with aloin, podophyllin, cascara sagrada, or any one of the numerous vegetable or saline laxatives. When the intestinal canal is torpid, small doses of nux vomica, belladonna, physostigma, or muscarine, or the use of faradization over the abdomen, will often afford relief, or entirely remove the constipation. The use of the natural mineral waters, especially the Bedford, and the Congress and Hawthorn Springs of Saratoga, and the Capon Springs of West Virginia, taken regularly before meals, will be found beneficial in overcoming constipation, and in toning up the alimentary canal. In case the patient can not go to the springs, it will then be best to have the spring-water procured in bottles or barrels, and taken at home. It is often advantageous to combine the internal administration of one of the ferruginous preparations with a natural mineral water, or to give a saline containing a large quantity of iron, which adds additional vigor to the alimentary canal. Or, a sea-voyage, and residence at Cheltenham in England, Baden-Baden or Kissingen in Bavaria, Friedrichshall in Germany, or Carlsbad in Bohemia, and drinking their waters, will often effect a very happy change. If this is impracticable, beneficial results may be obtained by taking, at home, before meals, the mineral waters of these places, imported in bottles, but they should be drunk in a regular and systematic manner; the Carlsbad being noted, in particular, for curing many derangements of the digestive tract.

The following prescription has proved beneficial in many under my care, suffering from acne due to stomachic and intestinal disorders:

℞ Tincturæ ignatiæ..................	gtts. lxxx.
Tincturæ coptis trifolia.... q. s. ad	f ℥ iv.

M. Sig.: Two teaspoonfuls in water half an hour before meals.

The tincture of the burdock-seed combined with the tincture of the gold-thread and ignatia also forms a most excellent tonic, and acts beneficially on the glands of the skin.

In other cases, where there is much acidity, the subnitrate of bismuth, in ten-grain doses, can be employed with decided benefit. When it is desired to give the bismuth in a mixture, the following prescription is of service:

℞ Bismuthi subnitratis................	ʒ ij.
Pulveris myristicæ..................	gr. xl.
Syrupi zingiberis...................	f ℥ iij.

M. Sig.: Two teaspoonfuls in water after meals.

An equally good and often preferable preparation is pepsin, bismuth, and strychnine, given in the form of a powder or pill after meals. In scrofulous subjects, and in those who are poorly nourished, the preparations of malt, or cod-liver oil, either alone or combined, are especially indicated. If the digestive organs are weak, it will be better to give dilute phosphoric acid with the compound tincture of cinchona or with cod-liver oil.

The hypophosphites and phosphates, in this same class of patients, and in those who are pale, with loss of appetite, and lack of vigor, certainly prove efficacious.

The preparations of sulphur and arsenic can frequently be given with excellent results. The former can be used in the form of the sulphide of calcium,* as recommended by Ringer, in from one tenth to one half grain, four times daily.

Arsenic can be used, either in pill form, or given as the liquor potassii arsenitis, in one or two drop doses before meals. It is a valuable agent in relieving certain forms of dyspepsia, particularly chronic gastric catarrh, chlorosis, and anæmia, and will thus often, after benefiting or curing one or the other of these affections that may be present, also completely eradicate acne. It is stated by Gubler, of Paris, that glycerine, in acne punctata, will sometimes be found useful.

Young adults suffering from derangements of the genital organs should have, if possible, all such irritation removed by suitable treatment, and should be advised to gratify their sexual desires by marriage, after being completely cured. Young women having uterine and ovarian affections, being usually those that are anæmic and debilitated from leading a too sedentary, or a gay or dissipated life, or from overwork in schools, stores, or machine-rooms, need, above all things, a complete change in their mode of living, and should take iron, quinine, or strychnine, or one of the many bitter tonics. The disease in some may be so severe as to require a uterine examination, and appropriate local treatment.

Hygienic measures are of the utmost importance in acne, especially in scrofulous subjects. The general surface of the body should be bathed frequently, to promote a more healthy and vigorous action of the skin. Cold water is to be used, when there is no counter-indication, by either sponging the surface, or by the cold douche, or by immersion of the entire body. Many are not able to bear cold water, in one or other of the forms just suggested, and in such the warm, hot, or vapor bath may be substituted. Moderate and regular exercise in the open air during sunlight, either walking, riding, driving, boating, skating, or in taking sun-baths, will have the happiest effect in bringing about a cure.

The last, but far the most important, consideration in treating the disease, is the selection and use of proper food. During youth, when there is such a physiological activity of the glands, blood-vessels, and nerves, there is a like active waste and repair taking place in the economy. It therefore behooves acne-subjects to be abundantly supplied with food that is rich in nitrogen and inorganic constituents, to meet the demand of the growing body. Food that is indigestible and unwholesome, such as pastries, jams, sweetmeats, pickles, and cheese, should always be avoided.

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* For further research on this remedy, see "Report of Committee on Restoratives, of the Therapeutic Society of New York, on the Use of the Calcium Sulphide as an Anti-suppurative." New York, April 24, 1882.

Local Treatment.—As acne is an inflammatory affection, due to an irritation, the local treatment should first be directed to the removal of this irritation, after which the parts should be soothed, and the congestion relieved with appropriate remedies. I begin the local treatment by interdicting the use of all soap, and, when water is used upon the parts, advising that it should be as hot as the patient can bear; the addition of a small quantity of starch, or borax, or both, is made when the congestion is very great.

I usually prescribe, in the early stages of the affection, applications of the ointment of the oleate of lead, or the ointment of the oleate of bismuth, or zinc, adding at times arrowroot, mercury, creasote, or morphia, as in the following prescription:

℞	Unguenti plumbi oleatis	ʒ ij.
	Pulveris marantæ	℈ j.
	Olei olivæ	q. s.

M. Ft. unguentum.

Sig.: Apply lightly over the surface.

In case it is necessary to stimulate the lesions, the addition of from ten to thirty grains of the oleate of mercury can be advantageously made. Another very good application is:

℞	Unguenti bismuthi oleatis	ʒ j.

Sig.: Apply night and morning.

If the parts are thickened and indurated, add from one to five grains of naphthol. Another excellent combination is:

℞	Unguenti zinci oleatis	ʒ ij.
	Naphthol	gr. ij.
	Pulveris marantæ	ʒ ss.
	Cerati simplicis	ʒ ij.

M. Sig.: Apply frequently to the parts.

Many other medicinal substances, of a soothing or stimulating nature, according to the indications, can be beneficially combined with the above oleates. Soothing lotions may also be used in some cases, and are often more acceptable than ointments. I occasionally recommend:

℞	Atropinæ sulphatis	gr. ss.
	Pulveris sodii biboratis	ʒ jss.
	Aquæ rosæ	f ℥ iv.

M. Sig.: Sponge over the surface.

Again, I often use:

℞ Liquoris plumbi subacetatis........... ℥ ij.
Aquæ sambuci flor................... f ℥ ij.

M. Sig.: Saturate an old piece of muslin, and apply for a short time, night and morning.

The following will also be found beneficial:

℞ Acidi borici......................... ʒ iij.
Aquæ aurantii flor.................. f ℥ ij.
Aquæ rosæ.......................... f ℥ ij.

M. Sig.: Use externally.

It is of great value in many cases where large portions of the body are covered with the eruption, to either soothe or slightly stimulate the lesions, by the addition of a medicinal substance to the bath. I frequently in this way use with advantage a steam, medicated, or a liquid bath. The latter can be made emollient by the addition of starch or linseed; alkaline, with bicarbonate or biborate of soda; acid or iodine bath, by the addition of one or other to the water. Medicinal vapor-baths of sulphur, mercury, and naphthol have also proved of service. Soap may also be used with the bath, either alone or combined with such drugs as sulphur, tar, mercury, carbolic acid, naphthol, thymol, and chamomile.

If a simple case should not yield to the foregoing treatment, I then resort to the use of a mechanical remedy by puncturing all the papules and pustules, and scooping out the sebaceous plugs with the needle-knife, which is represented in Fig. 10, and which I described in 1878.* This knife is like a fine needle, having flat sides pointed upon the extremity, and presenting the appearance of a spear. Each papule, pustule, or abscess is punctured by inserting in a perpendicular manner the needle-knife, and the black blood and broken-down sebum will then readily flow from most of them. Occasionally, the accumulated sebum manifests a tendency to remain, but gentle pressure at the sides of the lesion will usually bring it away. It will likewise be necessary to nick the sides of the dilated follicles that contain sebaceous plugs, pass the little needle down, and scoop out the sebum. The use of this needle-knife will be found to free the follicles and delicate tissue of a substance that acts as an irritant, and to deplete the congested skin. It will also relieve all stagnation, and awaken the action of the absorbent vessels, so that applications can now be more effective when used on the parts. This operation not only accomplishes the purpose just set forth, but it likewise prevents the rupture of the epidermis, the discharge of pus, and the formation of scars. The lesions, when punctured or cut in the manner I have described, will always heal nicely, and will not leave any evidence of the operation.

On the other hand, the various means used by some to rid themselves of these acne-spots by squeezing out their contents between the nails or fingers, or pressing over them a watch-key, in order to remove the plug of the sebum in the follicle, inflicts on the skin a large amount of injury. It intensifies the disease by breaking the soft and delicate epithelium, produces scarring on healing, and leads to disfigurement. Patients in whom these scars have formed, either from neglecting the eruption or resorting to the injurious habit just referred to, can be benefited and often cured (when the subject is not too old) by tapping the spots thoroughly with the needle-knife. After the operation, which should again be repeated in from three to four days, the lesions should be allowed to bleed freely, and very warm or hot water dashed on the surface to favor as much as possible a copious flow of blood. The parts are then to be mopped dry with an old towel or piece of muslin, and one of the soothing oleates or lotions previously recommended lightly applied over the surface.

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* "A Clinical Study of Acne," Medical and Surgical Reporter, August 10, 1878.

The use of stimulating remedies, such as sulphur, mercurials, alcohol, the tincture of witch-hazel, etc., separate or in combination with other substances, is at times serviceable. Occasionally, patients will present themselves who can not at once be induced to try the mechanical treatment. In such instances, which are very rare, if the soothing remedies with or without the baths will not succeed, I then resort to an ointment composed of—

℞	Sulphuris sublimati	ʒ j.
	Pulveris sodii biboratis	ʒ ss.
	Naphthol	gr. ij.
	Adipis recentis	℥ j.

The following prescription may be applied with advantage:

℞	Sulphuris sublimati	ʒ j.
	Olei anthemidis	gtts. x.
	Plumbi carbonatis	ʒ j.
	Adipis recentis	℥ j.

Stimulating substances may be employed in the form of lotions, viz.:

℞	Sulphuris sublimati	ʒ ij.
	Ætheris sulphuris,	
	Spiritus vini rectificati	āā ℥ ij.

M. Sig.: Shake well, and mop over the surface.

Again, the use of the following formula will give gratifying results:

℞	Hydrargyri chlor. corros	gr. ij.
	Tinct. hamamelis Virginicæ	℥ ss.
	Aquæ rosæ	℥ vss.

M. Sig.: Apply over the face on retiring. Shake the vial before using.

Among many other substances employed in ointment form, are the

English hypochloride of sulphur, the sulphuret of potassium, the mild chloride, the biniodide, and the ammonio-chloride of mercury, compounded of various strengths, or the mercurial plaster, as recommended by Neumann, or a plaster made of salicylic acid and gutta-percha, applied on strips of linen. Another method of treating acne locally is to freely dust the lesions with sulphur and other stimulating powders. It should, however, be remembered that if sulphur or any of its salts be applied with a mercurial, the sulphuret of mercury will form on the skin, filling up the follicles with black points, and causing disfigurement of the countenance. I have been consulted by persons who have been disfigured by these applications, and, for removal, have advised the sponging of the skin with a solution of boracic acid.

The soap treatment of acne, which was recommended and so largely used by Hebra in the form of his alcoholic solution of soap—the tincture of green soap—consists in vigorously rubbing the affected part with the alcoholic solution of the potash soap, and is efficacious in some cases, particularly those having a thick and tough skin. For the majority of Americans, whose epidermic covering is usually soft and delicate, I have found less powerful stimulants sufficient.

Some authorities touch the acne spots with tincture of iodine, tincture of cantharides, the acid nitrate of mercury, and other caustics, but I have never seen any good results follow their use. They are even more severe than the alcoholic solution of soap, and when employed will at times run off on the surrounding skin, producing great pain and distress.

Ellinger * strongly recommends for acne frictions of the skin with fine sand. It should be free from dust, and the grains almost as large as a poppy-seed. The skin should be washed with ordinary soap and water, after which the affected parts are to be rubbed for a short time with the sand, slightly wet. After this procedure any adhering particles must be sponged or brushed away. I have had good results from this method in obstinate cases of acne indurata.

Prognosis.—Acne, although one of the most obstinate and relapsing of the skin affections, can either be limited or cured by remedies, or may terminate spontaneously after the individual has passed beyond the age of puberty, and the system is in a state of repose. The prognosis is, therefore, always favorable, but an early cure can seldom be promised.

The probable duration of the disease—an inquiry usually made of physicians—will largely depend upon the exciting cause, the amount of the eruption, and the habits and occupation of the subject. Simple acne, with a small number of papules and pustules, and that due to external irritants, can often be rapidly cured by mild treatment, and a removal of the exciting cause.

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* Wiener med. Wochenschrift, No. 45, 1876.

Acne indurata and acne cachecticorum, occurring in the debilitated and scrofulous, accompanied with many lesions, often last for years, and are followed by much scarring, and relapse with the least indiscretion or neglect.

ROSACEA.

SYNONYMS.—Acne rosacea—Gutta rosacea—Couperose.

Rosacea * is a chronic inflammatory disease of the face, characterized by vivid redness, due to an enlargement of the capillary blood-vessels, and later by hypertrophy of the subcutaneous cellular tissue.

Symptoms.—Rosacea usually attacks the nose, cheeks, forehead, and chin. In rare cases it may affect the entire face, and also involve the scalp and the neck. It may present three stages—the congestive, varicose, and hypertrophic. It may not, however, run successively through all of them. It is a chronic and obstinate affection, beginning in one or the other of the above forms, remaining for months or years in that condition, or passing on to the most advanced. The first stage consists in an intense reddening of the nose, at times the same condition existing on the cheeks, forehead, or chin, without either swelling or tension of the parts. This redness will disappear on pressure, to again reappear upon its removal. It will be seen on close inspection that it is due to an engorgement of the blood-vessels. The enlarged and tortuous vessels are particularly apparent upon the sides and bridge of the nose. It is, however, more common for rosacea to occur alone upon the nose, but it may also be found occasionally isolated on the cheeks, forehead, and lips. It may either be uniformly distributed over the part involved, or appear as small patches with normal skin between them. The disease usually begins in the form of spots, and spreads until the most prominent portion of the face is covered by a diffuse redness which, when exposed to the cold, assumes a livid tint.

Sometimes, owing to the excessive vascularity of the part, the sebaceous glands are excited, and rapidly accumulate and discharge oily sebum. The nose will then have, in addition to the redness, an oily and shining aspect, and the patient will complain, especially after meals, or after walking against the wind, or after exposure to cold, of a warm sensation in the parts. The progress of the disease in the majority of cases is very slow, often requiring months, and even years, for its development. It occasionally, however, runs rapidly through the different stages, this being generally due to the condition of the system and the violence of the exciting cause. It may continue in the first stage for an indefinite period, but it is more frequently succeeded by

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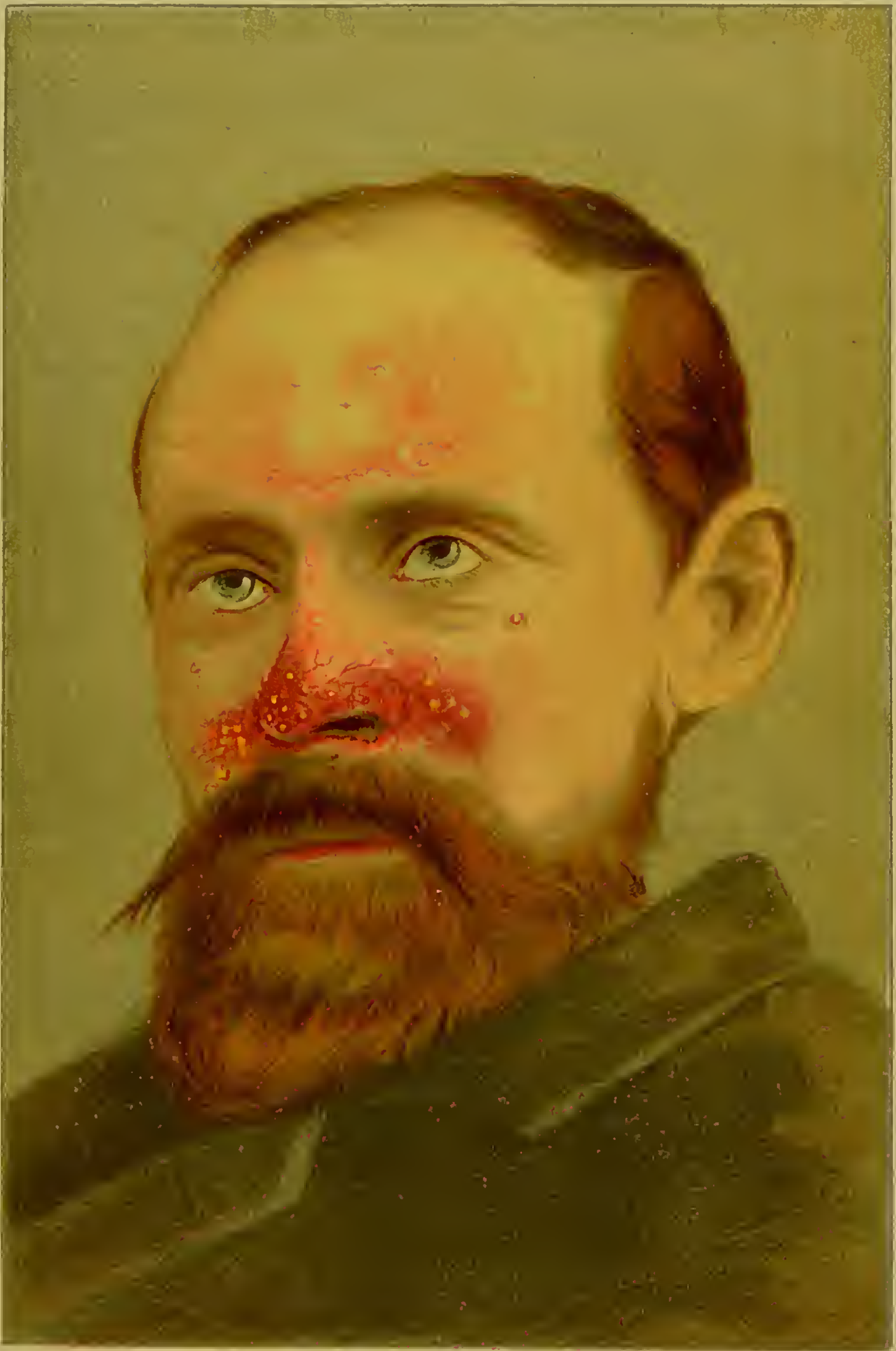
* This description of the disease has been extracted from my paper on "Rosacea." See Transactions of the Medical Society of the State of Pennsylvania, vol. xii., 1878.

Plate II.



From Nature—Rosacea.

the next, in which small capillary blood-vessels appear upon the surface. The skin now remains constantly injected, and the superficial vessels become tortuous and varicose. The vessels may be fine or thick in calibre, and usually run in an irregular manner. The integument thickens, and as the disease encroaches upon the glands it causes inflammation, suppuration, and the formation of scattered papules and pustules. Plate II—a patient recently under my care, at the Hospital for Skin Diseases—is an accurate representation of this condition. The habitually injected skin, covered with papules or pustules, and the enlarged features, cause great mental distress, especially in females. The disease which at first only involved the nose may now extend to the cheeks, forehead, chin, and at last cover the whole face. The redness may no longer remain uniform, but it may become livid in hue where there are papules and pustules. The skin in this stage is often rough and granulated, giving to the patient a very repulsive appearance. The second stage, like the first, is usually very slow in its development, and the affection may not pass beyond it.

The morbid action may, however, in some rare cases still continue, more especially in men, until either the subcutaneous cellular tissue undergoes excessive hypertrophy, or the glands and blood-vessels become distended and enlarged.

In one form of the disease the blood-vessels become enormously distended, the skin has a greasy and shining appearance, the temperature of the nose is lowered, and it is cold to the touch. In another form the intervening skin between the blood-vessels is very much thickened, and of a dark-purple color.

In the most severe form of the third stage, tubercular elevations, or a lobulated condition, livid in color, may also appear on the nose, owing to the thickening and hypertrophy of the parts. Noses having these pendulous masses seriously alter the appearance of the countenance, and have been termed rhinophyma. Fluellen's allusion, in Shakespeare's "King Henry V.," to Bardolph's countenance, aptly expresses in the following words the distortion of this stage of rosacea: "His face is all bubukles, and welks, and knobs, and flames of fire; and his lips plows at his nose, and it is like a coal of fire, sometimes plue and sometimes red."

In a case which came under my observation some six years ago—an old English brandy-drinker—the nose assumed, as Hebra has expressed it, the form of a clapper of a bell; the excrescences were enormous, the sebaceous glands very large and filled with plugs of sebum, the skin was almost purple in color and cold to the touch.

Diagnosis.—Rosacea can be diagnosed from other diseases by its history, course, and the alterations in the skin. It may be distinguished from acne by the increased vascularity in the former affection, its persistence, the varicose condition of the blood-vessels, the thickening of the integument, and its limitation to the face. Acne, on the other hand, when present as the primary disease, is simply an acute inflammation of the glands and follicles, and is not confined to the face.

Rosacea may likewise be mistaken for syphilis or lupus; but such an error should not occur, and, to avoid it, I will give the following diagnostic points between these affections: Syphilis is attended with a history; it is preceded by *malaise,* sore throat, and the roseolous rash, and usually attacks one side of the nose. Syphilitic tubercles and pustules do not involve the cutaneous glands; they are rarely developed alone on the face; have a dull, coppery color, and may be complicated with fissures, ulceration, or the formation of crusts. Again, they are usually larger and more firm than in rosacea. In rosacea there is no syphilitic history, nor any of the concomitants of specific disease. As a rule, the disease involves first the end of the nose, and the color of the patches is a vivid red from the enlarged and tortuous blood-vessels, which are absent in syphilis. The pustules and tubercles of rosacea are of a bright tint, and have their seat in the glands of the face, but do not ulcerate or form fissures or crusts.

Lupus erythematosus may be mistaken for rosacea. The surface of the diseased patches in lupus erythematosus is covered with fine, yellowish scales, adherent to the follicles beneath, which are not present in rosacea. Lupus vulgaris may bear a resemblance to rosacea. In lupus vulgaris the well-known papules, tubercles, and scales are present; ulceration, occurs, and cicatrices result.

In rosacea no scales are present; the part is covered with varicose blood-vessels, the tubercles never ulcerate, and no attempt is made at the formation of cicatrices. Hyde* refers to a case of herpes zoster which he had seen, which involved the nose and resembled rosacea. He adds that the painful character of the disorder, its limitations to one side of the face, its transitory career, and its vesicular lesions, were sufficiently characteristic.

Finally, rosacea may have the appearance of frost-bite. In the latter the parts are bluish-red, shining, and much swollen; in the former, the skin is red, greasy, and little or no swelling is present.

Pathology.—The anatomical changes in rosacea consist first in congestion of the minute blood-vessels of the parts. In the second stage the blood-vessels become hypertrophied and permanently dilated, together with an involvement of the sebaceous glands, and the development of seborrhœa or acne-spots. This second stage, with the alteration in the blood-vessels, may continue for a long period, improving, and again relapsing from time to time, or passing into the third stage, in which there is hypertrophy of the cutaneous glands and tissues of the part, and the growth of a new connective-tissue element.

Hebra has shown an abnormal growth and development of connective tissue. Piffard * found that the horny portion of the epidermis was insufficient, the mucous layer thickened, the papillæ contained round and fusiform cells, and were enlarged both in length and breadth. The corium had the appearance of a formed tissue, being very much thickened; some of the sebaceous glands were normal, while others were undergoing degenerative changes.

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* Hyde's Diseases of the Skin, Philadelphia, 1883.

A microscopical examination, which I made of a piece cut from the nose of a patient in attendance at the Dispensary for Skin Diseases, Philadelphia, and reported in a paper † before the Pennsylvania State Medical Society, showed just a vestige of the horny layer of the epidermis, while the mucous layer was very thick. The papillæ were much enlarged, and the blood-vessels markedly dilated and varicose. The subcutaneous cellular tissue was hypertrophied, and the sebaceous glands were degenerated by the pressure of the surrounding tissue.

Etiology.—Rosacea is met with in both sexes, but more frequently in men. It may happen in youth, but it appears mostly in middle or advanced life. In women it may occur about the age of puberty, during uterine and ovarian disorders, and at the cessation of the menses, and will not usually pass beyond the first and rarely to the second stage of the disease. The application of cosmetics, paints, and irritating lotions is an immediate cause of it. I have found these preparations to be productive of the disease in both men and women in the theatrical profession, and in women in the decline of life, notwithstanding all the care which they have taken in applying the cosmetics. Among other of the prominent causes are—chlorosis, anæmia, excesses of the table leading to dyspepsia, chronic affections of the stomach and intestines, morbid conditions of the liver, and want of cleanliness. The attitude made necessary by certain occupations, which causes an increased flow of blood to the face, is also an inciting factor. Thus, we see it in bakers, engineers, etc., who are compelled to work with their faces in proximity to hot fires. The habitual use of vinous, spirituous, and malt liquors is also a common source of the disease. The powerful action of these liquors in producing increased facial circulation, leading to a hideously swollen condition of the nose, can be observed daily. These deformities are commonly known as "grog-blossoms," "brandy-nose," and "wine-nose." Frequent exposure to cold winds often provokes rosacea. In a few cases it is impossible to trace the disease to any external or internal influence.

Treatment.—The method of treatment to be employed will largely depend upon the stage and the cause of the affection. The physician should, therefore, in all cases carefully examine into the patient's condition, and, if any constitutional derangement exist, give the appropriate remedies. Women, suffering from uterine or ovarian disorders, should have the proper treatment to eradicate them. Men, who indulge in liquors and dissipation of other forms, should be advised to adopt a temperate mode of living. The diet should be plain and substantial, especial care being taken to avoid rich food of all kinds.

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* Archives of Clinical Surgery, vol. i. p. 21.

† Transactions of the Pennsylvania Medical Society, 1878.

In those who are anæmic and debilitated, the ferruginous preparations, minute doses of arsenic, cod-liver oil, the extract of malt, nux vomica, and the dilute phosphoric acid, with bitter tonics, are of great advantage. Those in whom no cause can be traced are often benefited by a change of climate. In women who have depraved health, nervous depression, menstrual disorders, or are at the change of life, and who are often great sufferers from rosacea, with frequent flushing of the face and throbbing of the blood-vessels, the judicious use of the nitrite of amyl, as suggested by Ringer,* will often bring relief, either given by inhalation or the stomach, the latter form being usually preferred—two minims dissolved in one drachm of rectified spirits; the dose of this is from three to five drops on sugar every three hours, the first dose to be taken as soon as the flush appears. The local treatment is, however, the most important and advantageous in almost all cases. Soothing remedies will answer in some, in others stimulating, and often the addition of one or another of the many mechanical means will modify and frequently arrest the disease. In the first stage I endeavor by soothing applications to relieve the congestion and allay the irritation. The ointment of the oleate of bismuth, which I suggested in papers read before the Pennsylvania State Medical Society, in 1879 and 1882, will often fulfil this purpose. The ointment, lightly penciled over the surface two or three times daily, will soothe the hyperæmic skin, relieve the engorgement of the glands, and bring comfort and ease to the patient. In some a dusting-powder of either the oleate of zinc, the subnitrate of bismuth, or equal parts of each combined, with powdered starch or arrow-root dusted over the surface after using the ointment of the oleate of bismuth, will not only assist very much the action of the oleate, but will relieve the face of its greasy appearance. Ladies can in this manner use the above preparations, lightly applied as a cosmetic, to hide the disease in place of one of the many injurious face-powders, and can have the satisfaction of knowing that the application is beneficial, and may cure the disease. The following soothing ointment has also been efficacious in other cases, used either alone or with one of the dusting-powders just named :

℞	Plumbi carbonatis	ʒ j.
	Pulveris marantæ	ʒ j.
	Hydrargyri ammoniati	gr. x.
	Unguenti simplicis	℥ j.
M.	Ft. unguentum.	

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* Ringer's Handbook of Therapeutics, seventh American edition, p. 370.

Soothing lotions are especially effective in some instances :

℞ Plumbi acetatis,
Zinci acetatis.......................āā gr. x.
Aquæ rosæ.......................... ℥ iv.

M. Sig. : Apply with an old piece of muslin spread over the surface for an hour or two night and morning.

In the second stage I have had good results from the extract and tincture of witch-hazel, weak solutions of chloride of zinc, and caustic potash, glycerine, the various mercurials, precipitated sulphur, chrysarobin, and the English hypochloride of sulphur. Some of these remedies can be used in the form of an ointment and others as lotions. It is a good plan sometimes, especially when the nose alone is involved, to brush collodion along the course of the blood-vessels, which compresses them, and thus lessens their calibre. In several cases I have obtained excellent results from this method alone. Again, the vapor-bath is valuable both in the first and second stages ; it renders the skin soft and smooth, and hastens the absorption of the lesions. Another efficacious application is the oil of ergot, or half an ounce each of glycerine and oil of ergot, with one drachm of the extract of belladonna. If the preparations named should fail, poultices and fomentations may next be employed. In obstinate cases I have a good starch-poultice prepared, which is bland and unirritating to the skin, and applied moderately warm, usually just before retiring, and allow it to remain one hour. It is a ready and convenient method of applying a hot bath directly and effectually to the parts. It allays all irritation, burning, flushing, pricking, or pain, limits and checks the inflammation, and abates the tension. It also relaxes the tissue, and renders the absorbents more active to the application of the oleate of bismuth or any other soothing remedy, which should be immediately applied after the removal of the poultice. In case the congestion of the skin still lingers and remains obstinate, I puncture the surface with the needle-knife. During the operation I hold the knife in the right hand, and rapidly apply it over the patches, while with the left hand I sponge the surface with hot or very warm water, in order that the bleeding may continue freely. The water applied in this manner will remove the poured-out blood, and will prevent it from clotting in the incisions, arresting its flow, and obscuring the operation. I always allow the knife to penetrate to various depths according to the thickened condition of the integument. In some points of the diseased patch simple hyperæmia may be present, while in others tubercles and excessive hypertrophy may exist ; consequently, the former will need very slight punctures, while the latter will require deep incisions according to the hypertrophic growth. In this manner I reach all the larger and smaller patches, relieve the congestion and stagnation, equalize the circulation, and awaken the action of the absorbents, so that local applications may have some effect. This operation should be repeated after an interval of from four to seven days, according to the requirements of the case. After each operation one of the bland and soothing preparations, or one of the astringent and stimulating remedies recommended, can be used much more effectually. Hebra* suggests, in treating this affection, the use of an instrument made after the form of a lancet-needle, with cutting edges on both sides, and provided with a stop, so that it may not penetrate too deeply into the derma. He adds that the perpendicular punctures are made for the purpose of destroying the blood-vessels, and that the bleeding can be easily arrested by compressed wadding. Squire operates on rosacea by means of an instrument which he calls the multiple scarifier. It consists of a number of needles attached to a handle, and arranged parallel to one another with a covered shield on either side. He maps out the diseased patches with a solution of black sealing-wax, freezes the surface with an ether-spray, and then applies the multiple scarifier. Should the scarifier be too broad for some of the smaller patches, he advises that they be operated on at a subsequent sitting with a single scalpel. The bleeding which follows the use of this instrument, he states, may be copious, but it can be immediately arrested by pressure with the fingers—a layer of wet blotting-paper being interposed between the fingers and the skin pressed. Aube, who recommended linear scarification, believes that it only is to be relied upon in rosacea before the hypertrophy has become too far advanced. The same object, it can be seen, is obtained by either one of the operations named, although the one I am accustomed to employ appears to be the easiest and simplest for practical use in all respects. The tortuous and varicose blood-vessels may be obliterated by passing into them an ordinary needle heated to redness, by using the galvano-cautery, with a fine-pointed needle, or by electrolysis. In this latter method a very fine cambric-needle is selected and connected with the negative electrode of a galvanic battery of from six to ten cells. The needle is then inserted into the varicose vessel, after which the patient is handed the positive electrode, which completes the circuit; the latter electrode is dropped before withdrawing the needle, which will prevent the patient from experiencing a shock on breaking the circuit. The deformity of the third stage may be reduced by either puncturing deeply the hypertrophic blood-vessels and tissue, by scarification, by using the ordinary needle heated to redness, by electrolysis, by faradization, by the galvano-cautery, or by operative procedure with the knife. Cheadle † reports good results from the faradic current. Piffard states that he has obtained very decided shrinkage of hypertrophic noses by the use of the galvanic current.

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* Wien med. Woehenschrift, January, 1878.

† Practitioner, London, July, 1874.

Prognosis.—The prognosis depends largely upon the cause of the disease. If the affection has not passed beyond the first or second stages, and the exciting cause can be eradicated, it can usually be relieved or cured. The result, however, depends essentially upon the habits of the patient. It will at times in women subside spontaneously, especially after the climacteric period. In the third stage, as a rule, particularly when it is due to bad habits and all kinds of over-indulgences, where a decided change in the tissues has taken place, the results, even under the most experienced, are not usually favorable.

SYCOSIS.

SYNONYMS. — Sycosis non-parasitica — Mentagra—Acne mentagra — Folliculitis barbæ — Lichen menti—Bartfinne—Sycosis non-parasitaire.

Sycosis is a non-contagious, inflammatory disease, acute or chronic in its course, involving the hair-follicles chiefly, of the bearded part of the face, and characterized by the formation of pustules, papules, and perhaps tubercles, usually perforated with hairs, together and accompanied by more or less infiltration of the part.

Symptoms.—The disease usually occurs on those portions of the face on which the beard, whiskers, and mustache grow, although it may be seen upon other parts of the body supplied with hair. It generally begins on the cheek, chin, or upper lip by the appearance of small, discrete pustules or papules, or both, the lesions being perforated by hairs, which are usually firmly fixed at first, but at a later stage of the disease become loose, and are easily removed. The lesions may appear in successive crops at longer or shorter intervals, and may remain isolated throughout their course, or become crowded together, forming well-marked patches.* The pustules or papules may be either flat or conical, varying in size, being usually about that of a millet-seed. The pustules are not generally inclined to rupture, unless there be more or less severe inflammatory action. The surrounding skin is reddened, swollen, and infiltrated; there may be present papulo-pustules and tubercles, and, if the pustules rupture, scales and crusts may also exist. The disease is usually preceded or accompanied by heat, tension, smarting, burning, and occasionally pricking or painful sensations. Sometimes patients will describe the pain as proceeding along the course of the hair which traverses the lesion, and refer to it now and then as a hair-pain. Sycosis may commence in some cases within the nostril, or pass up from the upper lip and affect the follicles of the stiff hairs or vibrissæ, the disease becoming excessively obstinate, and at times extending to the Schneiderian membrane. In this event the columna that divides the nose becomes swollen and inflamed, the organ itself is hot, very painful, and upon the slightest movement of it tears flow from the eyes. The disease, while affecting most commonly the cheeks, chin, and upper lip, may also appear on the scalp, eyebrows, eyelashes, neck, axillæ, and pubic regions. It may appear in one or more points, and spread until it involves all of the region invaded, or it may develop simultaneously over all the parts just named.

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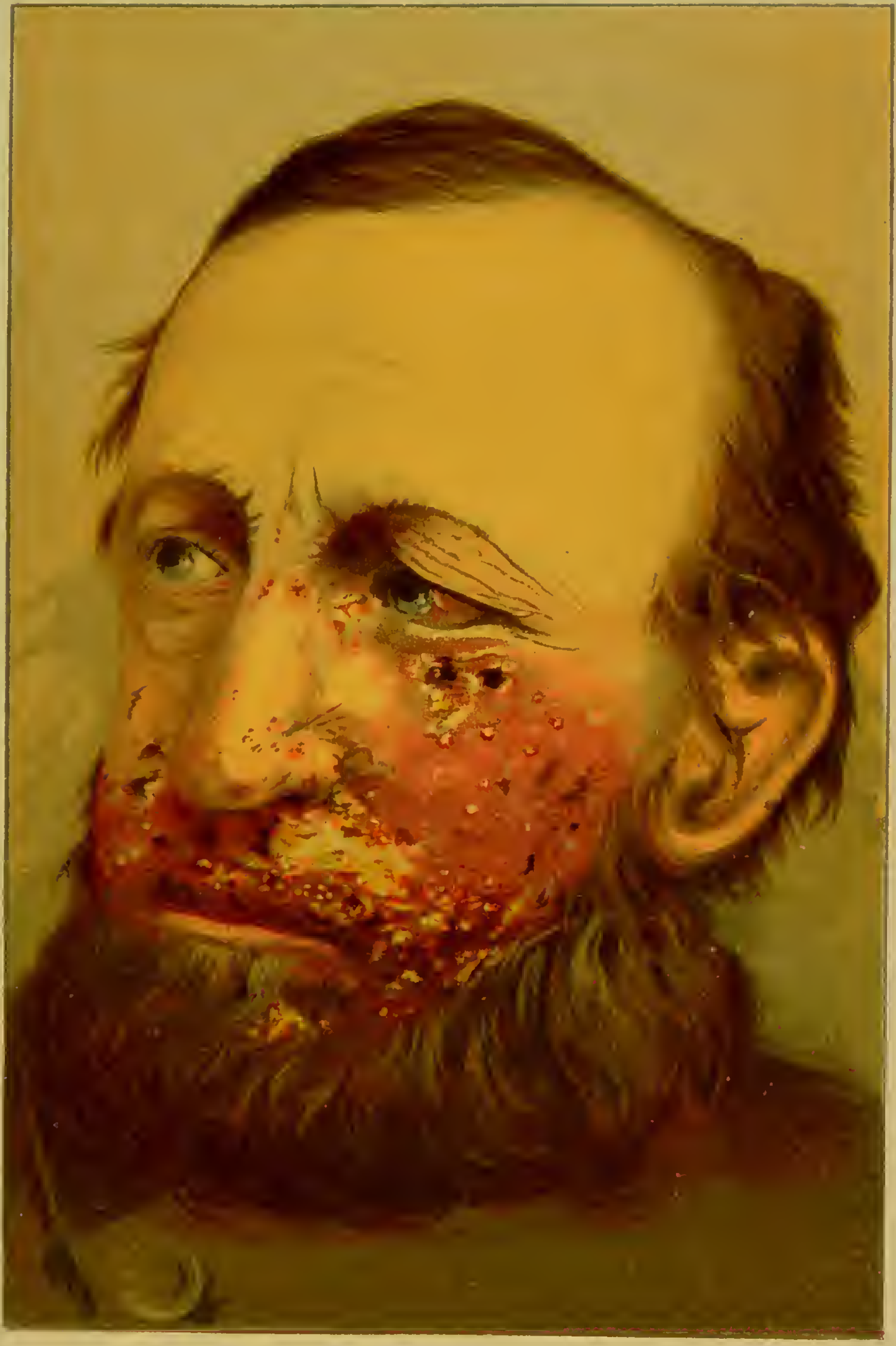
* See paper by the author on "Inflammation of the Hair Follicles of the Beard."

The character of the disease will also vary considerably, according as the eruption is isolated or confluent. In some the lesions are distinct and few in number, while in others they coalesce, the inflammation penetrates deeply into the derma and subcutaneous cellular tissue, infiltration and thickening are marked, the parts become covered with tubercular elevations, scales, and crusts, and occasionally unhealthy granulations and abscesses appear, with many openings, and the surface becomes extremely tender and painful. Plate III well illustrates a marked case which was cured in the Skin Hospital but a short time ago. If such cases be allowed to progress, the follicles and the tissues of the parts will be destroyed by ulcerative action, leading to permanent scars and loss of hair. Sycosis is modified according to the condition of the hair of the affected part. If the hair is thin, and feeble in growth, or if it should be cut close or shaved, the disease can be better seen and managed ; on the other hand, if the hair is long, thick, and vigorous in growth, the diseased surface can only be seen by separating the hairs ; it will also be difficult to treat until the hair is cut close to the part. When the condition of luxuriant growth exists, the hairs become matted together with poured-out products, giving the countenance a disgusting appearance. The course of the disease is usually chronic, often as the result of being improperly managed, or, more frequently, being over-treated.

Diagnosis.—Sycosis is liable to be mistaken for tinea barbæ, or barber's itch, as both diseases invade the hair-follicles ; but the symptoms of each are distinct and characteristic. The diagnostic signs of pustules, papules, and tubercles, pierced in the centre by hairs in their normal condition, yet firmly seated in the follicles, except when removed by suppuration or extraction, when the root-end is found to be enlarged and covered with pus, are observed only in sycosis. On the other hand, barber's itch is usually ushered in by small, red, or scurfy patches, the hairs are loosened in the follicles, being brittle, altered in texture, and, as the disease advances, finally breaking off, producing the characteristic stubbled condition of the surface. In case the disease under consideration is attended by marked inflammatory action, judgment should be suspended until the poured-out products can be examined by the microscope, in order to demonstrate the presence or absence of the fungus. It is also sometimes difficult to distinguish between sycosis and pustular eczema. All doubt, however, can be set at rest by the absence of discharge, the perforation of the pustules by



From Nature—Sycosis.

hairs, and the limitation of the disease to the parts supplied with hair. Again, should eczema be present, not only may there be a moisture of the surface, the eruption extending to the adjacent parts, but the symptom of itching is usually marked and characteristic. Syphilitic or scrofulous pustules and tubercles, developed on the hairy parts of the face, might be confounded with sycosis. The former lesions, however, are usually preceded by a history, and accompanied by other evidences of the disease. Further, in specific affections, if crusts be present, upon their removal a well-marked ulcer, with sharpened edges, will be seen, while in sycosis there is little or no loss of integument. Pustular acne might resemble the early stage of sycosis, but the lesions are not pierced by hairs, nor is the disease limited to the male, in whom the beard has grown.

Pathology.—Sycosis, in its early stage, is a peri-follicular inflammation of the skin. While Wertheim * and Köbner † were the first to invoke the aid of the microscope in determining the nature of this disease, yet they confined themselves to the examination of the extracted hairs only, and not the affected tissue. Subsequently, Robinson examined portions of the skin, obtained from a living subject, and showed the changes in the invaded part from the commencement to the termination of the disease. According to the observations of this pathologist, the transuded serum penetrates the hair-follicle, and increases in quantity as the inflammation proceeds. Pus is also poured out, and the follicle-sheaths become softened and more or less destroyed, permitting free ingress of pus into the cavity of the follicle. The cells of the root-sheath and hair-root become swollen and infiltrated with sero-purulent matter and pus-corpuscles, and finally become broken down and separated from the follicle-sheaths, so that the hair lies loose within the follicle, and can be easily extracted. The pus reaches the surface by oozing out between the hair-shaft and the follicle-sheath, or by breaking through the epidermis near the hair. In the majority of cases the follicle-sheaths are more or less destroyed, but the hair-papilla remains uninvolved, and in time produces a new hair. In severe cases the follicle-sheath, root-sheath, hair-root, and hair-papilla are all destroyed, and permanent loss of hair ensues. The sebaceous and sudoriparous glands and other tissues of the skin may also become disintegrated, and replaced by cicatricial tissue.

Etiology. — Sycosis is a non-contagious inflammatory affection, usually occurring between the ages of twenty-five and fifty, and is generally due to some constitutional derangement. It is often dependent upon a debilitated state of the system. It is observed among those who are mentally or physically overworked. It follows the use of unwholesome and unsuitable food, excesses of all kinds, and occasionally appears in individuals convalescing from exhausting diseases. It may be excited by local irritants, as want of cleanliness, and in persons who are subjected, particularly by their occupation, to either a high or low temperature.

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* Zeitschrift der k. k. Gesellschaft der Aerzte, 1861.

† Klinische und experimentalle Mittheilungen aus Dermatologie und Syphilidalogie, Erlangen, 1864.

Treatment.—It will be found that the employment of both constitutional and local treatment will yield the best results. Cases treated with only local applications are generally protracted an unusual length of time, and, under such circumstances, it is by a recuperative action of the system that recovery takes place. The internal treatment is often advantageously begun with a brisk purge, the use of one of the mercurials being advisable. Good, nutritious food, and the simple bitters, alone or combined with strychnine and a mineral acid, will assist very much, especially in the debilitated or those out of health, in combating the disease. Iron, arsenic, phosphorus, and cod-liver oil can be advantageously employed. The iodide of iron is particularly serviceable, in from two to three grains, in pill-form three or four times daily. Another valuable preparation is the liquor arsenici et hydrargyri iodidi, as recommended by Tilbury Fox, in from three to ten drops, three times daily, especially if there be much inflammatory thickening of the parts. If there is a tendency to the formation of a large quantity of pus, the phosphates, hypophosphates, calcium sulphide, or potassium chlorate, will generally assist in counteracting this condition of the system.

The local treatment, which is all important, requires, in the acute stage, emollient and soothing applications. The hair may be cut as short as possible, or it may be allowed to remain in the natural condition, providing it will not mask the disease and interfere with the local applications. Shaving, which is usually recommended, is painful, and I have never seen it attended with good results. Scales and crusts, if present, should be removed by oil-dressings or a poultice. As applications, lotions are more agreeable to some patients, either warm or cold, and, such being the case, lead-water and laudanum, weak solutions of witch-hazel, zinc and lead acetate, or of corrosive sublimate, can be used. Oils are likewise effective upon others, especially the oil of ergot, olive-oil, with fluid mercury oleate, or cod-liver oil, alone or combined with arrow-root, zinc or lead carbonate, opium, arnica, or belladonna, lightly pencilled over the surface. Among the serviceable ointments at this stage are the zinc, lead, and bismuth oleates, alone or combined with other agents; calomel or white precipitate, ten grains to the ounce of cold cream or rose ointment, forms a valuable application. Diachylon ointment, with a few grains of camphor, will also be found efficacious. Sometimes applications that are more stimulating are more effective, especially in the later stages of the disease. One of the very best remedies to use, under such circumstances, is the ointment of oleate of mercury, of from five to twenty per cent strength, according to the condition of the parts, and applied alone or in conjunction with other remedies. The ointment of nitrate of mercury, in from one to three drachms to the ounce of zinc ointment, is also useful. Sulphur, tar, naphthol, or carbolic acid can also be advantageously combined with any of the preparations advised.

In addition to the employment of the remedies just suggested, it is often of the utmost value to open the various lesions which may be present with a knife, and to puncture the surface thoroughly, thus relieving the enlarged and congested blood-vessels, allowing the stagnated blood to circulate, the effused serum to escape, and preventing the formation of pus. Depletion is not only useful in the early stage of the disease, in conjunction with suitable topical remedies, but in the subacute and chronic forms especially, if there is much thickening of the skin, it is followed by decided beneficial results.*

Epilation, resorted to by many physicians to prevent permanent alopecia following, and which is extremely painful, becomes unnecessary if the lesions and parts are thoroughly depleted in the manner described. Depletion also awakens the activity of the absorbents of the parts much better than such heroic agents as green soap, acetic acid, etc., and thus assists the action of the local applications. The abstraction of blood should be resorted to from one to three times a week, the parts encouraged to bleed freely by the use of warm water, the surface mopped gently dry, and the remedy applied well over the surface. The incisions and punctures usually heal rapidly, the thickening lessens, the symptoms disappear, and a cure is effected without any scar or deformity.

Prognosis.—Sycosis yields rapidly in some, and in others it is protracted for a long period of time, even months and years. Relapses are common, especially in persons who are subjected to continued local irritation. It is, however, curable when properly managed, but the treatment should be continued until all evidence of the disease has entirely disappeared.

IMPETIGO.

Impetigo is an acute inflammatory affection, characterized by the development of discrete, rounded, elevated pustules, of the size of a split pea or larger, situated upon a base, inflamed to some extent, and which disappear without leaving pigmentation or cicatrices.

Symptoms.—The eruption may or may not be preceded by mild febrile symptoms. It consists of round, elevated pustules, which are slightly acuminated, but not umbilicated. They are situated upon a somewhat inflamed base, with in the beginning a slight surrounding areola. Their contents are sero-purulent, purulent, and very rarely bloody. They present a whitish, yellowish, and occasionally a reddish color. In number they may vary from one to many. They are isolated, and, even if in close proximity, do not incline to coalesce. They do not tend to rupture, but their contents several days after maturity are partially or altogether absorbed, or dry into yellowish or brownish crusts. They may, on the contrary, occasionally be ruptured through friction or picking, in which event a thin purulent secretion escapes, which also dries into crusts. The amount of crusting may be slight or abundant, and after they have fallen off an erythematous surface remains, without pigmentation or scar. The disease has an acute course, the eruption generally appearing suddenly. The duration of impetigo is usually several weeks. Subjective symptoms are, as a rule, absent, but occasionally there may be slight itching. All parts of the body may be invaded, but it occurs by preference on the face, hands, and lower extremities.

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* Report of the treatment of a case of sycosis, by the author, in the Medical and Surgical Reporter, p. 298, October 13, 1877.

Diagnosis.—Impetigo may bear some resemblance to pustular eczema, impetigo contagiosa, and ecthyma. The pustules of impetigo are large, isolated, few in number, and do not incline to coalesce, while those of eczema are small, clustered, numerous, and tend to run together. The pustules in impetigo, further, are attended with but slight if any infiltration and itching, and have no inclination to break; in eczema infiltration is present, itching is marked and often constant, and the lesions rupture soon, with more or less crusting.

In impetigo contagiosa the primary lesions are vesicles, and the pustules when formed are frequently flat and umbilicated, with a tendency to coalesce. Impetigo is not contagious, and can not be traced to several of the same family, as impetigo contagiosa.

In ecthyma the lesions are distinguished from those of impetigo by the pustules in the former being flat, and seated on a hard, inflammatory base, and surrounded by a marked areola. The crusts also differ materially, being in ecthyma brown or black in color, large, flat, and thick, and seated upon an excoriated surface.

Pathology.—The inflammation of the skin in impetigo is superficial, and is limited to the corium, involving only the papillary layer. Robinson states that it is a corpuscular inflammation, the embryonic or pus corpuscles being present in great numbers in comparison with the amount of serum.

Etiology.—Impetigo is a rare, non-contagious disease. It is encountered chiefly among children, particularly those that are improperly cared for and badly fed. It is also associated with disorders of the gastro-intestinal tract, and may occur after any debilitating affection.

Treatment.—Suitable hygienic measures, and good, nutritious food are of the utmost importance. If any special functional derangement exist, it should be corrected. The affected surface should be protected against irritation, and when the pustules are fully developed they should be incised, and the pus evacuated. A mild mercurial, or other slightly stimulating ointment, may then be applied to the parts. If scabs have formed, they may be removed by water or oil dressings, or poulticing, after which the ointment can be applied to the surface.

Prognosis.—The prognosis is good.

IMPETIGO HERPETIFORMIS.—This rare and serious affection was first described by Hebra, who observed but few cases, nearly all of them terminating fatally. It prevails, according to his experience, only among pregnant women.

The eruption is characterized by the development of small, yellow pustules, arranged in groups or in the form of rings. The lesions incline to run together, and to dry into yellowish or brownish crusts, and at the same time similar pustules form around the periphery of the patch, pursuing the same course as in impetigo. The peculiar annular formation of the lesions presents a resemblance to herpes iris. The surface beneath the crusts is red, moist, excoriated, and infiltrated. The disease attacks chiefly the anterior surface of the trunk and the inner surfaces of the thighs, but may occur upon the face, neck, arms, legs, and other parts of the body. In Hebra's patients there was marked constitutional disturbance, every outbreak of pustules being preceded by chills and fever.

Duhring describes the disease as consisting in the majority of cases of pustular and bullous lesions combined, or occurring alternately. The eruption in his cases was similarly arranged, and had a like course to those of Hebra's. The constitutional symptoms, he reports, were variable, but the itching was always violent. Duhring's patients were not pregnant women, and in no instance was there a fatal result. The eruption, he adds, manifested a disposition to recur, and was but little influenced by treatment.

Heitzmann reports the case of a woman at the climacteric period, which was followed by a fatal termination. Robinson also records what he calls a well-marked case in a boy ten years of age, the lesions developed being papular, vesicular, pustular, and bullous, and occurring over all the body, except the palmar and plantar surfaces.

Treatment.—The disease is to be managed upon general principles, the symptoms being the guide.

IMPETIGO CONTAGIOSA.

Impetigo contagiosa is an acute, inflammatory, contagious affection, characterized by the development of isolated, flat, or elevated vesicles, blebs, or vesico-pustules, the size of a split pea, or larger, which dry into slightly adherent crusts.

Symptoms.—The disease is generally ushered in with mild febrile symptoms. The eruption appears as small, isolated, flat or raised vesicles, or blebs, which soon increase in size, and become transformed into vesico-pustules or pustules. In shape they are usually round or oval, and are occasionally umbilicated. They may, though rarely, be irregular in form. They may have a slight areola around them, or it may be wanting. The number is, as a rule, small, and at times, when closely seated, they may run together and form a patch. They may appear simultaneously, or in successive crops. In the course of a few days they dry into yellowish, straw-colored, and slightly adherent crusts, beneath which some slight excoriation exists, covered with a thin, purulent secretion. If the scalp is involved, the patches are circular, usually isolated, and covered with flat crusts, which mat the hair. The crusts, soon after their formation and drying, fall off, exposing an erythematous surface, which also in time disappears. Subjective symptoms are generally absent, but there may be at times slight itching. The affection, in the majority of instances, attacks the face, head, arms, and hands, but it may likewise appear on other parts, even the mucous membrane of the eyes and mouth. It may begin in one region, and, by scratching, spread by direct inoculation of the secretion to other portions of the body. Its duration is from seven to ten days.

Diagnosis.—Contagious impetigo may be confounded with impetigo, eczema pustulosum, and varicella. In impetigo the pustules are raised ; in the contagious form they are, or become, flat. In eczema the lesions are not isolated, and the itching is often marked and constant, thus differing in these respects from impetigo contagiosa. Varicella is distinguished from impetigo contagiosa by the lesions remaining vesicular throughout the disease, as well as their smallness in size, and their general distribution over the body.

Pathology.—Vegetable organisms have been detected in the crusts by some observers, and from which the eruption is said to arise. Tilbury Fox and others declare that they are merely accidental. No decided evidence has yet been adduced, from an examination of the vesicles or crusts, to account for the development of the lesions.

Etiology.—The disease is contagious and auto-inoculable. It occurs principally in poorly nourished and unclean children. It has at times appeared after vaccination. It has also been known occasionally to be epidemic in form.

Treatment.—The constitutional treatment should consist of fresh air, cleanliness, nutritious food, and tonics. Locally, zinc or lead ointments act beneficially. An ointment of five or ten grains of calomel or white precipitate to the ounce of lard has been found to be a useful application.

Prognosis.—The eruption disappears, often very rapidly, under suitable treatment.

ECTHYMA.

Ecthyma is an inflammatory disease, characterized by the development of one or many isolated, flat pustules, situated upon an inflammatory base, and followed by temporary pigmentation and cicatrization of the skin.

Symptoms.—Ecthyma may occur as an acute or as a chronic affection. In the acute variety, which is rare, the eruption may be preceded by slight febrile symptoms, which usually disappear upon its appearance. Locally, there may be heat, burning, itching, and sometimes pain, followed by the formation of reddish raised spots, with hardened bases and a well-marked reddish areola, tender to the touch. These spots rapidly pustulate, and are in size about that of an ordinary pea, or larger. They are usually round in form, but sometimes are flat, sharply limited, and few or many in number. They give exit, in the course of a few days, to pus, which dries into thick, hard, yellowish to reddish or brown adherent scabs. The character of the scabs, however, will vary according to the quantity of blood which may be discharged with the pus. On their removal, the surface beneath may be excoriated or superficially ulcerated, and covered with a purulent, bloody, or sanious secretion. The disease runs its course in from one to three weeks, after which the scabs fall off, exposing slight spots of pigmentation or cicatrices. The pustules may, during the course of the disease, appear in successive crops or persist and pass into the chronic state.

Chronic ecthyma, which is more common than the acute variety, occurs mostly from some irritation of the skin, like that produced by animal parasites. The lesions are, however, similar in all respects to those of the acute variety. Ecthyma occurs at all ages and in both sexes, particularly in those who are badly nourished, unhealthy, and do not receive proper care. It usually attacks the extremities, but the back, buttocks, and other parts of the body may also be invaded.

Diagnosis.—Ecthyma is liable to be confounded with eczema pustulosum, impetigo, impetigo contagiosa, impetigo herpetiformis, and flat pustular syphiloderm. It may be distinguished from eczema by the pustules being discrete, as well as by their size and form. The character of the pustules and crusts, already alluded to, serves to point out its difference from impetigo. It is known from impetigo contagiosa by the history or absence of contagion, the part affected, and the character of the lesions. Ecthyma may resemble impetigo herpetiformis, but the history, the grouping, and the spreading peripherally, of the lesions in the latter affection will assist in establishing the diagnosis. The affection may closely resemble the flat pustular syphiloderm; but the history of the latter, its slow course, the peculiarity of.

the pustules, crusts, and ulcers, with other evidences of syphilis are sufficient to separate the one from the other.

Pathology.—In ecthyma the inflammation, which is often very severe, is located in the upper layers of the corium. It leads to the development of pustules and destruction of tissue, followed by cicatrization, and pigmentation, both of which in time may disappear.

Etiology.—General debility and a depraved state of the blood are the most frequent predisposing causes. These are mostly produced through bad or unsuitable food, improper hygienic surroundings, especially bad air. Uncleanliness, excesses, overwork, fatigue, and the effect on the system of acute or chronic diseases are also potent factors in producing the disease. The exciting causes are any influences which may irritate or inflame the skin, as scabies pediculosis, and scratching.

Treatment.—The first requirement is the removal of the cause of the disease. At the same time the patient should receive wholesome and nutritious food, together with the necessary exercise, bathing, and fresh air. Diet and hygienic measures will, therefore, be found to be the most certain means of restoring the system to its proper condition. The ordinary tonics are serviceable. Aperients, in addition, often prove of great value. Acute cases are frequently benefited by large doses of iron and quinine. The chlorate of potassium, given alone or in connection with strychnine or belladonna, lessens very much the tendency to the formation of the lesions.

The phosphates, hypophosphites, the mineral acids, and cod-liver oil can be administered as they may be required. Chronic cases may also be given the foregoing systemic treatment in addition to the hygienic measures. The local treatment will depend upon the cause and the stage of the eruption. If it is secondary to some other affection, as scabies or pediculosis, the exciting cause should as soon as possible be removed. In the early stage of the disease alkaline and emollient baths are always of service. Lotions which are of an anodyne nature may also be used ; of these lead-water and laudanum, or a weak lotion of witch-hazel, will be found the most effective. Crusts should be removed with oil, or water-dressings or poultices, and a weak mercurial ointment, ten grains of calomel to the ounce of lard, applied. One drachm of boracic acid or sulphur, or a scruple of naphthol to an ounce of zinc-ointment, is also recommended. If the sores obstinately resist treatment, a fifty-per-cent solution of boro-glyceride, or a weak lotion of either carbolic acid or nitrate of silver, will stimulate them to healthy action.

Prognosis.—The prognosis is good, except in old persons, attended with other complications, when it may be serious.

PITYRIASIS RUBRA.

SYNONYM.—Dermatitis exfoliativa.

Pityriasis rubra is an inflammatory disease affecting generally the entire surface, and characterized by a deep-red color of the skin, with abundant exfoliation of thin, whitish scales.

Symptoms.—Pityriasis rubra, which is a rare affection, commences as small, red, scaly patches, which rapidly spread until the whole surface is involved. The skin presents a uniformly deep-red color, which is lessened by pressure. Whitish or grayish thin scales are quickly and continuously formed and cast off. The scales, which consist of exfoliated epidermis, are generally abundant, and vary considerably in size. They may be large, even several inches in diameter, or small and branny. They are only attached, as a rule, at their centre, being free at their edges and slightly turned up; on their removal the skin beneath exhibits a shining appearance. The exfoliation is rapid and abundant in severe cases, a large amount of scales often being cast off in the course of a day. The changes in the skin, as a rule, involve the upper layers. The surface is dry, as there is no discharge. Thickening is generally absent, but in chronic cases may be present. Occasionally there may be œdema of the extremities. The nails may be attacked in severe cases, and may be opaque, softened, and at times fall out. In markedly severe cases there may be great tension of the skin, the eyelids being ectropic, the mouth opened with difficulty, the fingers bent, the skin greatly affected on the elbow, knee, and soles, walking being interfered with. The hair may also become thin, and fall out, and the patient finally die of marasmus.

In the majority of cases of pityriasis rubra, itching and burning sensations are either not present, or, if so, exist but to a mild extent. The skin is tender, and the patient usually complains of being cold or chilly. Constitutional symptoms, if present, consist of more or less fever, elevation of temperature, and debility. The disease may be acute or chronic, and may persist for months or years. It occurs generally during adult life, and the cause of its development is involved in doubt. Tilbury Fox held that it was due to nervous disturbance.

Diagnosis.—Pityriasis rubra may be confounded with eczema squamosum, psoriasis, pemphigus foliaceus, and lichen ruber. From eczema it is to be distinguished by the absence of marked thickening, the formation and character of the scales, and also the absence usually of subjective symptoms.

From psoriasis it differs generally in involving all surfaces. In psoriasis the scales are also different, being thicker, and seated upon infiltrated bases.

Pityriasis rubra may be mistaken for pemphigus foliaceus from the distribution and character of the exfoliation, but the formation of bullæ in the latter serves to distinguish the two diseases. Lichen ruber may be diagnosed from pityriasis rubra by always exhibiting papular lesions, and having some thickening of the skin—conditions which are not present in the disease under consideration.

Pathology.—Hebra has shown in mild cases of the disease cell-infiltration of the rete and corium, the papillæ, and the glands and hairs presenting a normal appearance. In severe attacks he observes, however, a chronic inflammatory infiltration to a marked extent. The cell-infiltration was abundant in all layers of the skin, and particularly beneath the epidermis. Under the latter there was a thin layer of compressed rete-cells largely filled with infiltration-cells. A thick, flat, connective layer existed beneath, with still below a layer of thick, elastic tissue, thrice the thickness of the three layers already referred to, and having also a collection of yellow granular pigment. The papillæ were absent, and the blood-vessels in the sub-epidermal tissue were surrounded with rete cell-infiltration. The sebaceous and sweat glands were also absent, with, however, occasionally one of the former present. The hairs were scanty and the hair-sheaths infiltrated with cells.

Treatment.—The results of treatment are unsatisfactory. The constitutional treatment will vary according to the condition of the patient, but, as a rule, sustaining measures act most beneficially. Iron, quinine, cod-liver oil, linseed-oil, and arsenic are remedies which may be resorted to with some advantage. The use of carbolic acid is reported to have been followed by good results. Aperients and diuretics may sometimes be indicated. Locally, weak alkaline and emollient baths are occasionally productive of good effect. The constant protection of the surface, by the application of a bland fat or oil, is serviceable. Olive, linseed, and cod-liver oils are the most effective remedies to employ for this purpose.

Prognosis.—The prognosis is not, as a rule, favorable. The general and severe forms are usually fatal.

PITYRIASIS ROSEA.—Gibert first described and named this affection. Duhring, Weyl, and others have also given a detailed account of it under the same name. Bazin, Hardy, and Horand have spoken of it as "pityriasis maculata et circinata." The disease, which is rare, may or may not commence with fever, followed by the appearance of macular or maculo-papular patches, principally upon the trunk. They may or may not be slightly elevated, or they may be depressed. In size the patches will vary from a pin's-head to a split pea, or larger, and they are either isolated or confluent. In form they are round or oval. Their color is mostly a light or dark red, which gradually becomes yellow. The patches are dry and scaly, with a tendency to spread in the periphery and heal in the centre. The subjective symptoms may be wanting or may be present, in the form of more or less itching. The lesions appear gradually or suddenly, the patches coalescing and then spreading until a large surface is involved. The eruption generally remains from four to eight weeks, and spontaneous recovery follows. The affection occurs chiefly in adults, of both sexes, in good health. E. Vidal reports the finding of small spores in the epidermis of pityriasis circinata, which is said to be identical with this disease. Pityriasis rosea may resemble ringworm, but the absence of the peculiar fungus of the latter will at once settle the diagnosis.

Treatment.—Weyl believes that active treatment is contra-indicated. Baths, mild dusting-powders, and soothing ointments may assist in a more rapid recovery.

FURUNCULUS.

Synonyms.—Furuncle—Boil—Blutschwär.

Furunculus is a circumscribed inflammation of the true skin and subcutaneous tissue, developing one or more various-sized, hard, and painful tumors, which terminate in suppuration and the formation of a central necrosed mass or core.

Symptoms.—The affection may be ushered in by slight or severe constitutional symptoms, or they may be entirely absent. Locally, the first evidence of the disease is an itching, burning, or painful sensation in the skin, followed by the appearance of a slightly reddened, elevated spot. It is tender, often painful, hard, and deep seated. Gradually it increases in size, and manifests a tendency to suppurate. In the course of a few days, usually from three to six, or more, according to the region involved, it reaches maturity. When fully formed it appears as a round or conical tumor, with a collection of pus in the apex. The latter is usually around the opening of a follicle, or is pierced by a hair. In some cases there may be no formation of pus, when the tumor is known as a blind boil. In size it may vary from a split pea to a pigeon's egg. In color it is usually of a deep or bright red to a purple. The pain which is generally present is of a throbbing or burning character, being more intense at night, and increasing in severity until the lesion is opened or bursts, when it ceases. Furuncles rarely appear singly, but generally multiple. They may occur in successive crops, several appearing as others are disappearing. As a rule they are isolated. They may invade any region of the body, but attack by preference the face, neck, axillæ, back, breast, buttocks, the anal and genital regions, and the extremities. Boils at times develop as a complication with eczema, scabies, and other diseases of the skin.

Diagnosis.—The diagnosis of furuncle is always easy, and, after considering the symptoms, errors are almost impossible. The affection differs from ecthyma in being deeper and having a central core. In like manner it can be separated from pustular syphilis by the absence, in the latter, of a central core, and in the history of the disease, with the presence of specific lesions upon other portions of the body. From carbuncle it differs in being smaller, with but a single point of suppuration, and being usually multiple. Carbuncle, on the contrary, is larger, with two or more points of suppuration, and occurs singly.

Pathology.—The furuncle arises, no doubt, from some derangement in the circulation, leading to necrosis of the tissue. The attempt by suppuration to throw off this dead tissue constitutes the peculiar process of the disease. An embolus forms in the capillaries around the glands, developing mortification of the gland, with consequent circumscribed inflammation and plastic infiltration. The plastic infiltration is followed by a purulent one, which is discharged with the central mass or core. On the separation of the core there remains a cavity, with surrounding infiltrated tissue, which gradually closes by granulation.

Etiology.—Boils are most frequently occasioned by some internal derangement. Nervous impairment, chlorosis, diabetes, albuminuria, rheumatism, gout, tuberculosis, scrofula, dyspepsia, fevers, and debility, are among some of the more active causes which lead to their development. They also occur from many functional derangements of the system, from changes in the habits and modes of living, diet, seasons, and the result of poisons, debilitating diseases, and from great fatigue. The blood very often, from one or the other of the above conditions, has an effete product circulating in it, and only requires some local irritation of the skin as a cause; e. g., the wearing of dyed clothing, bathing, scratching, blisters, contact with pus, poisons, ointments, and other substances. Hergott records an epidemic of boils in the lying-in hospital at Nancy from an infected bed-pan. They occur at all periods of life, but are more frequently seen in young and old people.

Treatment.—This affection demands both constitutional and local treatment. Hygienic measures, such as frequent ablutions, with exercise, and possibly a change of air, often prove of service. The diet required should be very nutritious, and administered as a medicine, if the patient, as is often the case, has lost all desire for food. The cause should be sought, and appropriate remedies given according to the indications. If the secretions are disordered, they should at once be corrected. In broken-down and debilitated subjects, iron, quinine, strychnine, the mineral acids, cod-liver oil, and arsenic, are the most suitable to employ; the selection to be made as the case may require one or the other of these agents. Small doses of opium are advisable when the pain and discomfort are very great. The moderate use of malt and spirituous liquors, in the weak and aged, is advisable. Tonics, especially the simple bitters, with the alkalies, are useful. Young, plethoric, and vigorous individuals, in whom there is a deficient elimination, often improve rapidly upon alkalies, diuretics, and aperients. The most active remedies as prophylactics, and in overcoming the tendency to suppuration, are the chlorate of potassium, the sirups of the phosphates, the hypophosphites, the sirup of hydriodic acid, and the sulphide of calcium, used alone or in conjunction with various other tonics and aperients. If there is a tendency to the development of boils, or even when they are established, I invariably give five or ten grains of the chlorate of potassium, three or four times daily, in water, or as in the following formula :

℞ Potassii chloratis .... gr. c.
Aloini .... gr. ij.
Syr. phosphatis co................ f. ℥ v.
M. Sig.: Two teaspoonfuls three or four times daily.

The chlorate of potassium may be well combined, in cases needing it, with the sirup of the lactate or the iodide of iron. Another excellent remedy is the sirup of hydriodic acid twenty to thirty drops, three or four times daily. Local treatment is also valuable, but not as effective, in relieving or eradicating the disease. The boils may be aborted by applying compression, in the form of a bandage or one of the medicated plasters—the soap-plaster being considered most useful for this purpose. They may also at times be aborted by applying to their apices one of the caustics, as the stick nitrate of silver or carbolic acid. The latter, injected diluted, is also recommended. After the boil has been formed, and in its early stage, cold applications, viz., ice, ice-water, lead-water, and laudanum, diluted tincture of witch-hazel, and the tincture of arnica, are beneficial to relieve the tension and inflammation present, and lessen the pain. When suppuration has set in, warm and hot applications are serviceable, and assist in hastening the expulsion of the inclosed dead mass. The judicious use of poultices at this period is advisable, but care must be taken not to use them too early or too continuously, as they may increase the irritation and excite the formation of a new crop. The application of compound resin cerate, or what is popularly known as Deshler's salve, by its stimulating action hastens suppuration decidedly. It may become necessary, owing to the severe inflammatory action that may be present in and around the affected integument, to apply soothing and sedative ointments, especially those containing opium, lead, arnica, etc.

When suppuration is established, a free incision will lessen the inflammation, hasten the expulsion of the broken-down tissue, and assist in restoring the parts to their normal condition. Early incision, on the other hand, is not advisable at all times, as it often lessens, but will not remove, the tendency to suppuration.

Prognosis.—The prognosis is generally good. The lesions may appear successively, and be prolonged for months, but the eventual result is favorable.

CARBUNCULUS.

Synonyms.—Anthrax—Brandschwär—Carbuncle.

A carbuncle is a circumscribed, painful inflammation of the skin and subcutaneous cellular tissue, sometimes involving the deeper structures, and terminating in gangrene of the affected part.

Symptoms.—The development of a carbuncle is generally preceded by either slight or severe constitutional symptoms. After more or less *malaise*, there may be headache, chill, and fever, or even more decided systemic disturbance. The skin of the affected part then becomes hot, hard, swollen, painful, and bright or dark red in color. The pain, which is often very severe, is of a dull, burning, or throbbing character. Sooner or later, the swelling assumes a brawny appearance, followed with softening of the tissue ; the overlying skin becomes thin ; vesicles or pustules may form, which rupture ; or many openings occur, through which sanious pus oozes. The openings are centres of suppuration, which are blocked up with necrotic masses or cores, giving the part a cribriform appearance. The necrotic tissue, or cores, may come away after a time in portions, or slough out entire —the morbid action in severe cases destroying thus not only the superficial, but all the deep, soft structures of the part involved. There remains after the removal of this mass a cavity, or deep ulcer, with undermined edges and uneven base, which is filled up slowly by granulation, forming usually a pigmented, and often lasting, cicatrix.

Carbuncles generally occur singly, and may be associated with boils. They are variable as to size, being usually from that of an ordinary hen's egg to a saucer, or larger. They occupy as their selective seat the back of the neck, the back, and buttocks. The course and duration of the disease will vary according to the age of the patient, the condition of the system, its power of resistance, the region invaded, and the size of the carbuncle. In broken-down and elderly people it is a serious and at times a fatal disease.

Diagnosis.—Carbuncle differs from furuncle, about the only disease with which it might be confounded, in being mostly solitary, larger, and containing many points of suppuration. In its early stages it might also resemble erysipelas, but the circumscribed character of the inflammation, together with its hardness and painfulness, should always serve to distinguish it.

Pathology.—The pathology of the disease is similar to that of furuncle. The inflammation, however, is more extensive, beginning in many points, and extending downward to the deeper structures, as well as horizontally, and terminating in gangrene of the entire part involved.

Etiology.—The causes of carbuncle are similar to those of furuncle.

It can not always be traced to any assignable cause. It frequently attacks those who are broken down in health. Diabetes, albuminuria, rheumatism, and gout are among some of the prominent causes which occasion it. It occurs more frequently in summer than in winter. Men are more prone to the disease than women, and it is more frequently observed in middle and old age.

Treatment.—The treatment required is both constitutional and local. The systemic depression is more severe and serious, and therefore must be met more promptly and actively than in boils. Hygienic measures, and especially good nursing, are essential. The diet should be nutritious, consisting largely of animal food, as beef-tea, milk, and mutton-broth. Stimulants should be resorted to, and often employed for decided effect, particularly if there is much attendant depression and exhaustion. Whisky, champagne, and the preparations of ammonia are the most appropriate agents to administer in the above condition, and in assisting to support the flagging powers of the body. The most effective remedies to employ are the tincture of the chloride of iron and quinine. If the case is simply an ordinary carbuncle, the patient may do well on moderate doses of these drugs, but, if the constitutional symptoms are marked, they should be given in large and often-repeated doses. Thus, in severe forms of the disease, I generally prescribe one-drachm doses of the tincture of the chloride of iron every two or three hours, with ten or fifteen grains of quinine three times daily. Opium, or some other anodyne, is often necessary to overcome or lessen the pain, and afford rest to the patient.

The local treatment is frequently most beneficial in relieving the throbbing pain, and expelling the offending mass. In the early stages cold applications, especially of ice, may give much relief. Painting with carbolic acid, or cantharidal collodion, is also recommended. Hypodermatic injections of a five- or a ten-per-cent. solution of carbolic acid has been known to be effective. Puncturing deeply with a long, thin knife will lessen the tension and relieve the pain. Piercing the carbuncle in a number of places with a stick of caustic potash, or allowing small pieces of the potash to be inserted in it, and permitting them to remain, as recommended by Physick, assists in separating the diseased mass.

As soon as suppuration has set in, hot applications, especially the use of poultices, are advisable. The moment pus is formed a free incision or incisions—the crucial being the best—should be made, the dead tissue scraped or dug out, and the parts kept clean by antiseptic dressings. The resulting ulcer may be dressed with carbolized oil or an ointment containing balsam of Peru.

Prognosis.—The prognosis should always be cautiously given. It will depend to a great extent upon the age, condition of the patient, amount of disease, and the existence of complications. It is serious after middle life, especially if the carbuncle is large, the subject in poor health, and if disease of the kidneys or other organs be present. A fatal termination at times follows, particularly under the above conditions, but not as frequently as is generally supposed.

ANTHRAX (*Pustula Maligna*).—Malignant pustule is a rare disease, produced by inoculation from a poison developed in the lower animals. It may be contracted from partaking of milk, butter, or meat from diseased animals, or even through the agency of flies or insects. Commonly it is contracted by handling diseased dead animals, or their hides, and it is even said to be brought about by inhaling dust containing the virus. Butchers, tanners, furriers, and wool-sorters are most liable to it.

A few hours after inoculation a burning, itching, or painful sensation sets in on the affected surface. This is followed by the development of a papule, vesicle, or pustule ; the latter lesions extend until they become as large as a coin, and rupture, exposing gangrenous tissue, or an unhealthy ulcer. The parts most commonly attacked are the face, arms, and hands, particularly the dorsal surface. There is another form in which charbonous disease appears, described by Robinson, called malignant œdema of the eyelids, in which the integument is hard and swollen. The constitutional symptoms are usually pronounced in both forms, but are more serious in the latter. The systemic symptoms may be entirely absent, or there may be fever, delirium, and even a typhoid state, ending in death.

Post-mortem examination reveals extensive change, both in the parts involved, as well as in the various tissues and organs of the body. The blood is greatly altered and filled with bacilli.

Treatment.—The best treatment consists in sustaining the system with food, and stimulants, as whisky, ammonia, and ether. Quinine is also indicated in large and frequently repeated doses. The local treatment is absolutely necessary ; the papule, vesicle, or pustule should be at once excised and afterward cauterized, either with the actual cautery, the galvano-cautery, or with one of the mineral acids.

EQUINIA.—Equinia, also termed glanders and farcy, is a specific contagious affection caused by inoculation with a virus derived from the horse. The disease is characterized by inflammation of the nasal and respiratory mucous membranes, together with the lymphatics and skin. In the course of a few days to several weeks after inoculation, marked constitutional symptoms arise. There may be headache, *malaise*, chill, and pains of a rheumatic character, followed by the appearance of an erysipelatous eruption around the inoculated part; vesicles, pustules, and papules, and tubercular formations develop, and break down, exposing gangrenous tissue, or unhealthy, discharging ulcers. The lymphatics become swollen and inflamed, and bullæ appear in various portions of the body, followed by suppuration and destruction of the tissue. Large and painful hardened masses of cell collections can also be detected in the subcutaneous tissue, which break down and ulcerate. The nasal and respiratory passage and the contiguous mucous membranes become inflamed. A yellowish and muco-purulent, and later bloody discharge takes place from the nostril, the glands become swollen, and unhealthy ulceration and gangrene of the mucous membrane follow. The inflammation may extend to the buccal cavity and the throat, and the patient may die from the grave constitutional involvement, or from the disease affecting the glottis. The skin and mucous membrane may or may not be affected at the same time. The disease is not common ; it is contagious, being produced by direct contact, or through the air which may contain the peculiar virus.

Treatment.—The chief treatment consists in sustaining the patient with food, stimulants, and by the employment of large doses of the tincture of the chloride of iron and quinine. The local treatment mainly to be relied upon is cleanliness, by using antiseptic solutions of the corrosive chloride of mercury. The nasal cavities should be frequently cleansed with injections, and the lesions cauterized thoroughly, and afterward treated with suitable soothing applications.

Delhi Boil, Aleppo Evil, and Biskra Bouton.—The above three diseases occur endemically in India, Aleppo, Algeria, and other foreign countries. They have been described by Farquhar, Willemin, Geber, Tilbury Fox, D. D. Cunningham,* and others, to whose writings for a more detailed account the reader is referred. Fox, who has given a most careful account of them, believes that they are allied in many particulars to carbuncle. They are very chronic, appearing usually first as a papule or tubercle, which suppurate, and finally ulcerate. Hyde, who personally examined these affections during a visit to Arabia and Africa, states that the numerous furuncular, papular, and pustular affections encountered differed in no single instance from those in temperate climates, except in being aggravated by filth, meagre diet, climate, ignorant medication, and the syphilitic diathesis.

Abscessus.—Cutaneous abscesses are circumscribed cavities containing pus. They occasionally arise from some systemic derangement, but they are generally the result of local irritation or intense inflammation in connection with other diseases of the skin. They appear sometimes in connection with eczema, acne, scabies, and pediculosis. They may be formed on all regions of the integument, but are ordinarily seen on the scalp, face, neck, back, and axillæ.

Treatment.—Abscesses may require to be treated upon antiphlogistic principles. They usually only need to be opened, and their contents allowed to escape.

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* They are said to be due to a peculiar form of parasitic organism. (See recent researches by Dr. Cunningham, Indian Medical Gazette, February, 1886.)

Wounds and Contusions.—The skin and deeper structures may be incised, lacerated, contused, or bruised and punctured, in numerous ways, and may occasion slight or severe constitutional symptoms. The treatment in all instances is to be conducted upon general principles. There are, however, two very important forms of wounds of the skin, namely, poisoned and dissecting wounds, which demand special consideration.

Dissecting Wounds.—Dissecting wounds are due to direct inoculation from dead bodies, mostly during post-mortem examinations and dissecting. The symptoms may be only local, or both local and constitutional. The latter may be both severe and grave. Commonly, however, dissecting wounds only occasion a local inflammation. Inoculation may occur through an existing abrasion, or a wound made with the instrument used or in handling the body. A vesicle, pustule, or other lesion may form, followed by redness, infiltration, burning, itching, and pain. Occasionally there will be in addition more or less systemic disturbance; the pain will pass up the arm as far as the axilla, and lymphangitis follow. Rarely the constitutional involvement may become marked, and typhoid symptoms supervene.

Treatment.—The moment the wound occurs, the part should be at once sucked by the patient and then incised and allowed to bleed freely. The author can state, from six years' experience as an anatomical demonstrator, that when wounds are treated in this manner at once, the part heals rapidly without the least bad effect. During all of this time I have yet to see a single instance in which a dissecting wound so managed caused any local or constitutional symptoms. If the wound has not been attended to at once, it should be cut open, sucked, and allowed to bleed freely and afterward cauterized, the chloride of zinc being the very best to employ for this purpose.

Poisoned Wounds.—Poisoned wounds may be inflicted by insects, animals, and the bite of man. Flies, bees, wasps, spiders, scorpions, and snakes, by their bites or stings, produce all forms of lesions on the skin and severe inflammatory action. Bites of inferior animals, as rats, mice, cats, etc., and of the dog and horse, are also poisonous. No wound is so frequently venomous as that produced by the human bite, and it is also occasionally followed by severe constitutional symptoms. The skin may simply be denuded by the contact with the tooth, or the latter may occasion a punctured wound. Poisoned wounds may also be caused by birds, fishes, and other living objects besides those which have been mentioned. The symptoms which arise from wounds so produced are frequently of an erysipelatous nature, followed by profound general depression. Abscesses and mortification may follow, necessitating amputation of the affected part, and in some instances producing pyæmia and death. The internal treatment is opium for the pain, mercury when necessary, and stimulation with whisky and carbonate of ammonium. In very serious cases it may be necessary to resort to hypodermic injections of a stimulant, or a fluid drachm of a one-per-cent. solution of permanganate of potassium, suggested by Lacerda, which, he claims, acts decidedly in a very few minutes. The local treatment of stings of insects consists in the use of solutions of bicarbonate of sodium, naphthol, corrosive sublimate, ammonia, and tincture of witch-hazel and camphor. Solutions of carbolic acid and thymol are also useful. The application of earth is a popular and valuable remedy also for both stings and bites. Poisoned wounds inflicted by bites of the inferior animals are frequently best treated by emollient poultices, lotions of lead-water and laudanum, leeching, or free incisions. The latter should be used early and effectively.

Ulcers.—Ulcers are suppurating sores extending to various depths. They may be acute or chronic. An acute ulcer is rapid in its course, and attended with the symptoms of acute inflammation. It may invade the skin alone, or the skin and subcutaneous connective tissue of any part of the body. It is variable in size and shape. It is generally oval, circular, or irregular, but may be creeping, serpiginous, or angular in form. The surface of the sore may have a red and inflamed appearance, or be red in certain portions and white in others. The base of the ulcer, particularly if the inflammatory action is high, may present a brownish or even blackish hue, and the discharge may be of a serous purulent or bloody character. The edges of acute ulcers may be straight, thin, undermined, everted, or ragged. They may be complicated with sinuses. The surrounding integument manifests all the local symptoms of inflammation, being reddened, swollen, and attended with more or less pain. There is usually some constitutional disturbance, which sometimes may be most severe.

The Chronic Ulcer.—Chronic ulcers partake of all the phenomena of chronic inflammation. Their seat, number, shape, size, and appearance will vary greatly. They are mostly confined to the leg, at its lower third and inner surface. They are usually solitary, and, like the acute, may be of all sizes and shapes. The color of the ulcer, as in the acute, may vary from a deep red to a livid, and the integument around may likewise present all the phenomena of chronic inflammation. The surface of the ulcer may present a red, raw, irregular appearance, and one portion may be deeper than another. Granulations may be wanting, the bottom of the sore being covered with a sanious exudation, or they may develop exuberantly, presenting an unhealthy appearance, commonly known as proud flesh. The surface may incline to bleed on the slightest manipulation, and be insensitive or excessively sensitive to touch or motion. The edges may be elevated, everted, inverted, or undermined. They may be thick, thin, or ragged; hard, callous, insensible, or very sensitive. They may degenerate into malignant disease, and may be attended with some constitutional disturbance.

Acute ulcers may be caused by a depressed condition of the system, colds, and excesses of various kinds. They, as well as the chronic ulcers, are frequently induced by many other diseases of the skin. Varicose veins, particularly in elderly people, are very often productive of chronic ulcers. Fractures, wounds, and other injuries may likewise cause them.

Treatment.—Ulcers, particularly the acute, require to be treated antiphlogistically. Rest, especially in the recumbent position, is essential; blood-letting, cathartics, aconite, antimony, or some other similar agent should be employed to lessen vascular action, and opium, when necessary to relieve pain. A change of air, stimulants, and tonics may be demanded, and any attending complication should be corrected with suitable remedies. The part or limb, if possible, should be elevated and kept at rest, and bathed occasionally with hot water. Light compression can also be made with a muslin or gum bandage. The latter and the woven gum stocking are more useful in the chronic ulcer. Warm medicated lotions, particularly those containing lead-water and laudanum, or tincture of witch-hazel, are valuable. The application of weak lotions of chloride of zinc, the acid nitrate of mercury, or a strong solution of nitrate of silver, may be beneficial in both the acute and chronic varieties. The employment occasionally of a poultice has a soothing action upon an irritable ulcer, softening the tissue, and awakening the action of the dormant capillaries. Local depletion of the ulcer is also valuable; the engorgement is lessened, and the application of other agents by it rendered more effective. The various soothing, astringent, and stimulating ointments and plasters are alike serviceable in both the acute and chronic forms. Galvanism and skin-grafting are to be recommended in old chronic ulcers. Jequirity infusion often acts promptly and decidedly in setting up an acute reparative inflammation in obstinate cases, leading to a permanent cure.

ECZEMA.

Synonyms.—Tetter—Eczem—Eczéma—Crusta lactea—Scabies humida.

Eczema is a non-contagious, inflammatory affection of the skin, acute or chronic in character, appearing at its beginning in the form of any one of the elementary lesions, such as erythema, papules, vesicles, pustules, or a combination of them, accompanied with itching, more or less infiltration, and frequently attended with a discharge and the formation of scales and crusts.

Symptoms.—Eczema, which is a manifold, changeable, and polymorphous affection, may appear as one or all of the results of inflammation, either successively or simultaneously. It may also be followed by some such secondary results of inflammation as a discharge, with the formation of scales and crusts, fissures, abscesses, œdema, and hypertrophy.

It is decidedly a variable affection, often changing rapidly from one to the other form. In one case erythema may begin the series of symptoms, and the diseased surface may in turn become moist, infiltrated, dry, and desquamating. In another the affection may be manifested by the appearance of groups of either papules, vesicles, or pustules, either alone or commingled and seated upon bases which are more or less inflamed and attended with some or all of the local symptoms of inflammation, such as discoloration, pain, itching, smarting, or burning, swelling, heat, tension, with functional disorder of the part. In some rare cases marked constitutional symptoms supervene, especially when an extensive surface is involved. In others the vesicles which are formed may burst or rapidly change to pustules, and so give rise to a red weeping surface from the poured-out products which quickly form yellow, gum-like crusts from the drying up of this discharge. The eruption may now either suddenly or slowly undergo a change of form from the red, moist, and excoriated state to a more or less infiltrated, reddened, dry, fissured, and desquamating condition of the surface. Again, the only evidence of the eczematous disease in still other instances may be the development of fissures or cracks, especially upon the palmar and plantar surfaces, depending upon infiltration, and rendering every movement extremely painful, and at times completely incapacitating the sufferer from actively using the parts affected. Further, several or many of these lesions may appear or manifest themselves in turn upon the same case. It will also be found that more or less infiltration is one of the prominent features in every case of eczema. The fluid which escapes from the vessels with some leucocytes is either retained in the meshes of the corium, becoming organized and giving rise to thickening, or, as is more frequently the case, discharges and crusts upon the surface. The appearance of this discharge is not, as was formerly held, the diagnostic feature of eczema. It may or may not be present, and its appearance depends entirely upon the form of the disease. In the event that either the vesicular or pustular lesion is developed, the fluid exudation may be very great, as well as the thickening, crusting, and desquamation. On the contrary, should the erythematous, papular, or fissured form appear, desquamation and at times thickening may supervene, but no crusting; and the amount of the secondary changes that occur will depend entirely upon the stage of the disease, the age, and state of the constitution, the seat and extent of eruption. In short, these are briefly some of the many phases under which this changeable disease appears from time to time—a disease which is essentially different from all other cutaneous eruptions in the development of both the primary and secondary lesions which frequently undergo either rapidly or slowly so many changes in their form, often appearing as several varieties in the same subject, or being accompanied with marked and peculiar secondary changes.

The prominent and at the same time the most constant symptom of eczema is itching. It may be so slight in some as to hardly attract any attention, while in others it may be intolerable. The extent and degree of this symptom will, however, vary according to the amount of irritation, the location of the eruption, and the power of resistance by the individual. In some cases and in certain localities, as, for instance, on the palmar and plantar surfaces, itching and all other subjective symptoms are at times absent. In others the symptom of itching may be accompanied with a disagreeable burning, prickling, or tickling sensation, or the latter unpleasant impressions may alone be present. Occasionally, in neurotic cases of eczema, though rarely, pain may be the prominent local manifestation present.

Eczema may be acute, subacute, or chronic, the acute appearing and running its course for several days or weeks, and finally disappearing or remaining in a subacute condition for a time, to again develop into the acute form upon the least irritation, or to gradually subside into a chronic state, and so remain for an indefinite period, unless the condition is overcome spontaneously or by appropriate treatment.

Acute Eczema is characterized by inflammatory redness, attended by itching, smarting, burning, or tingling of the skin, together with swelling, heat, tension, and functional disorder of the parts. These initial local symptoms may attack all or part of the body, and may be mild or severe according to the locality invaded, and may at times be ushered in with restlessness, horripilation, trembling, as well as sleeplessness, gastric and intestinal irritation, and fever. Suddenly the reddened skin, which may also be œdematous and swollen, may be covered with a greater or a less number of either minute vesicles papules, pustules, and scales, alone or commingled. In place of vesicles, papules, or pustules appearing, the surface may simply present a reddened condition, with or without swelling or the formation of scales; and the epidermis may in some instances be rapidly stripped off, leaving the raw exuding corium exposed beneath it. If the eruption be vesicular in character, which is usually the case, the lesions either dry up, or, more probably, quickly rupture, giving exit to their contents, which often causes considerable irritation to the surrounding parts, after which the secretion is formed into yellowish or brownish scabs, together with some scales. The eruption of acute eczema, if not excited by further irritation, will usually subside in a few days or a week; the tendency to the inflammation will, however, linger for some time in the tissues, to again break out from the least exciting cause. It is more often the case that the eruption after disappearing for a short interval will again recur and gradually pass into the subacute variety. Thus it may be stated from this brief outline that eczema may be said to be acute when the eruption is of short duration, the inflammatory symptoms high, the primary changes prominent, and the secondary slight or insignificant.

SUBACUTE ECZEMA is a variety in which the inflammatory action is less marked than in the acute. It is often represented by the period of decline in the acute eruption in which the surface is reddened, slightly thickened, moist, and covered more or less with crusts and scales, or gronps of papules or pustules, from which issues an ichorous fluid occasioned by being torn from the scratching as the result of the intense itching, the pus from the pustules usually drying into yellowish, gummy crusts. Any slight or severe irritation from a constitutional or local cause may rapidly light the eruption again into an acute eczema, or it may gradually, or from frequent relapses and scratching, which bring fresh morbid appearances and deeper changes in the skin, subside into the third variety.

CHRONIC ECZEMA.—The line which separates the acute, subacute, and chronic varieties from each other can neither be sharply nor well defined. The appearances in the chronic stage coincide in every respect with those already described—to wit, the vesicles, the papules, the pustules, and the red, weeping surface covered with scales and crust. But something more will also be observed, namely, marked swelling, thickening, and a hard and often fissured state of the skin, attended with intolerable itching. Eczema may therefore be said to be chronic from a persistence and frequent relapses of the eruption in which the secondary changes predominate over the primary lesions. These changes in chronic eczema will, of course, vary according to the region with its peculiarities that is invaded, the duration of the eruption, and the effect of numerous external influences upon the part. While all parts of the body may become the seat of chronic eczema, nevertheless some portions, from their peculiar anatomical formations, especially those which are richly supplied with sebaceous glands and follicles, are particularly prone to this stage of the disease. Thus, for example, the head, the flexor surfaces of the joints, the groins, the scrotum, and adjacent parts, are surfaces in which the eruption lingers and settles in the skin. These changes will also depend upon the length and thickness of the hair, the amount and extent of attention to the skin and its appendages, the form and method of the dress, and the habits and occupation of the subject. Again, the duration of the attack will have an important bearing upon the condition of chronic eczema. Thus, in protracted cases, the exudation will be increased, the swelling and thickening greater and more marked, and the tendency of the affection is to spread to both adjacent and distant parts, or eventually cover all the body. Further, the air, and irritating substances in contact with the affected parts, as from clothing or by scratching, are external agents which modify very much the appearance of chronic eczema.

The form in which the eruption of eczema manifests itself varies according to the predominant anatomical lesion which may be present. At its commencement it may assume an erythematous, vesicular, papular, or pustular form, or a combination of these lesions, attended with secondary changes. It may appear either as a limited or as an extensive eruption, of all sizes and shapes, and arranged in single or multiple patches. The four clinical varieties of eczema which may follow in succession as stages of the disease will now be respectively described :

Eczema Erythematosum (*Erythematous Eczema*).—The prominent lesion in this variety from the beginning to the end is erythema. It usually appears as a small or large red patch, attended with a certain amount of heat, swelling, and itching ; the spots may be of any size and shape, but are generally undefined in outline, gradually passing imperceptibly into the surrounding healthy skin. The color of the skin is subject to great variation in the same and in different individuals, according to the exciting cause, the condition of the system, and the seat of the eruption. At times it may be almost absent to the naked eye, the subjective symptoms of itching or burning alone being felt, while at others the color may vary from a bright-red to a violaceous hue, or even a yellowish complexion, which old erythematous eczema often acquires. Thus, the color, as is frequently the case, may be uniformly diffused or mottled, as blotches over the affected surface. This variation in color can usually be observed upon some portion of the face, in which it is now pale or a bright red, and again a dull shade. As this latter form is more commonly seen at a time when the skin is darker in hue, as in middle-aged adults, the color is necessarily of a dark-red tint. Some swelling may be present, the extent of which will largely depend upon the locality invaded. After the eruption has existed for several days, the surface, which, by reason of the interference with the free action of the glands, has a peculiar hard and rough feel, caused by the absence of the normal unctuous material, also becomes covered with fine scales. There is usually experienced a feeling of tension, burning, and irritation, with either slight or severe itching. Moisture and all signs of a fluid discharge are commonly absent, unless the epidermis has been stripped off, exposing the corium beneath. The initial lesion, therefore, that is alone present is erythema, although in some instances minute vesicles and papules can be seen upon close and careful observation. The portions of the body thus invaded are generally the face and genitalia, although it may attack all or any part of the surface. This form, which is very liable to relapse, may remain localized to a small patch, or it may, as is usually the case, rapidly or slowly spread over a large surface. The morbid action is apt to be both variable and capricious in course and intensity. It may disappear for quite an interval, to again return; or it may improve to-day, to reappear to-morrow; or it may cease for weeks or months, to again relapse without any apparent assignable cause. External and internal influences which modify the circulation, such as sudden changes of temperature, violent exercise, excesses of the table, and spirits, are often the active factors in these repeated relapses. Eczema erythematosum may therefore either continue in the manner stated, or, as a result of the frequency of its attacks and a change of its stage, together with the appearance of secondary lesions, gradually pass into the chronic form of the disease. It may, on the other hand, terminate by delitescence or resolution, marked by a rapid or gradual diminution of the redness, heat, swelling, and by a relief of the subjective symptoms. Further, the termination of the process may give rise to a slight desquamation of the epidermis or to the appearance of small areas of healthy skin between and in the affected patches. As has been noted, this variety of eczema is liable to undergo certain changes, depending upon the locality, the exciting cause, and the external influences. As, for example, when the lesions occur upon two surfaces that are in apposition, as about the breast, the axillary spaces, the groins, the nates, and the genitalia, a moist, weeping surface results, which is known as eczema intertrigo or eczema mucosum, and usually terminates in desquamation. Frequent relapses from some exciting cause increase the infiltration and cutaneous irritation which leads to scratching, and excoriations and crusting, follow in turn, being marked secondary changes of other manifestations of eczema.

ECZEMA VESICULOSUM (*Vesicular Eczema*).—This variety of the disease is characterized at the outset by the formation of minute vesicles. Typical eczema is not, however, necessarily limited, as was formerly thought, to the development of this particular lesion, which has thus led to much confusion by practitioners searching always for vesicles, or the catarrhal discharge, on which to base their diagnosis. The formation of vesicles and other lesions, to be described later, is merely one manifestation, or one of the successive stages of this variable affection. Typical vesicular eczema may be ushered in with sharp pyrexia, headache, loss of appetite, thirst, coated tongue, and either diarrhœa or constipation. These constitutional symptoms are, however, only usually present when the morbid process is intense, and the surface involved extensive. The affected part, for a short time prior to the appearance of the eruption, feels hot, tumefied, tense, and irritable, after which minute red points, or a diffused redness, appears, attended with itching, burning, or prickling, which is often very great, and only ceases or lessens shortly after the appearance of a greater or less number of minute vesicles. These vesicles vary in size from a pin's-point to the head of a large toilet-pin, and are either discrete, or, as is more frequently the case, are closely packed together, quickly coalescing, forming patches and often becoming confluent. Each vesicle contains clear serum, or an opaque or yellowish fluid. In some of the mild cases, especially if the eruption is discrete, the vesicles dry up in the course of six or eight days, the minute white or dark scales of epidermis which cover them drop off, leaving the skin in its normal condition. In other instances, which is far more frequently the case, the vesicles burst in their earliest stage from the excessive congestion and the effused serum in the tissues, or from scratching induced by the intense itching, before being seen by the physician, and expose the parts, which are more or less excoriated. The surface, which is now swollen, hot, and red, pours out a serous fluid, which dries into light or dark, thin, yellow, and gummy crusts. The vesicles either continue to appear in successive crops, or the excessive effusion is poured out so rapidly on the former site of the vesicles that no reparative process can occur, hence no vesiculation, and in place of that lesion, a small or large quantity of a sirupy or ichorous fluid, the latter usually predominating, comes directly to the surface, dries at once into crusts, or runs off in drops, which at times is taken up by the meshes of the linen. The morbid action under such circumstances has now reached its height; the amount of secondary changes which are present will depend upon the state of the patient's system, the attention to the parts, and the extent of scratching or other irritations, as, for example, the access of air to the surface. At times the swelling alone is the most prominent and marked feature on the surface, the vesiculation being very slight —eczema œdematosum—giving the part an appearance very closely resembling erysipelas, while typical vesicular eczema usually presents the features just referred to. It will also be found that erythema, papulo-vesicles, vesico-pustules, pustules, and many other lesions, are also frequently associated with the vesicular eruption. The lesions of this variable affection are thus often so thoroughly commingled that it is at times out of the question to say which one predominates. The eruption may show itself either upon a small surface, or it may involve part or all of the body. It frequently occurs upon the face of adults as well as in children, and can also be observed about the hands, particularly upon the fingers. The most prominent subjective symptom is itching, which persists with so much intensity as to bring about an irresistible desire to scratch the parts, and so afford relief after the vesicles have burst or have been torn, and the serum has been permitted to escape, and the tissues benumbed. The serum which has been poured out in this manner, and which thus checks or lessens the itching, may in turn cause considerable irritation both to the affected patch and the surface with which it comes in contact. The irritation sets up a burning sensation, which is equally as annoying and intolerable as the itching. This teasing subjective symptom may also be attended with itching in addition, should another crop of vesicles appear, or, sometimes, with the eruption of a fresh crop of vesicles the burning subsides, and is succeeded by itching. Acute vesicular eczema may continue for a few days or weeks, and slowly subside by the drying up of the vesicles or the lessening of the swelling and the discharge, the fading of the redness, the margin of the affected patches becoming less distinct, the crusts loosening and falling off, the diseased surface becoming covered with scales, beneath which can be observed re-formed, soft, tender, and delicate epidermis, which generally remains in a somewhat red, tender, and delicate state for some time after all the inflammation has entirely disappeared from the part. In the event that delitescence or resolution will not take place, the vesicles may pass into pustules, or relapses may occur, and thus produce the inflammatory form, eczema rubrum, or gradually pass into the chronic variety.

Eczema Pustulosum (*Pustular Eczema*).—This form of eczema is known also as impetiginous eczema, or eczema impetiginosum, or impetiginodes. The lesions may be developed as pustules at the outset, or change from either the erythematous, papular, or vesicular varieties—more commonly from the latter—into the pustular form of the disease. The pustules are, therefore, in the majority of instances formed in the same way, and from the vesicles, their initial stage, to which they are closely associated, and are often commingled among and by the side of the vesicles at the same time. In fact, the two lesions, with their secondary changes, are so blended that it is not only difficult, but may be impossible, to decide which was originally the prevailing primary lesion. Usually minute vesicles appear either alone or in groups, and slowly enlarge, attain a firmer consistency, and become distended with a purulent secretion. These pustules, from the accumulation of the purulent secretion, and consequent distention, or from any irritation, burst, the poured-out ichorous secretion dries into greenish-yellow or dark-colored scabs and crusts, which become friable, and, falling or crumbling off, expose a red, tender, and irritable surface. The ichorous secretion also frequently gives rise to considerable irritation of the surrounding surface. The subjective symptoms, of heat, swelling, and itching, are mild, except in aggravated cases. In this latter class the pus formation and infiltration are often very great. If the morbid process in these cases occurs upon the hairy parts, especially the scalp, and the sebaceous glands become involved, the discharge becomes mixed with altered glandular secretion, mats together the hairs in an inextricable mass, causing intense itching, or a rancid odor, and great disfigurement. When this is the case the disease is both distressing to the patient and obstinate to the ordinary course of treatment. Pustular eczema is very common in the lymphatic and the debilitated, in those who are poorly fed and who do not receive proper care, especially in young children. It may occur upon all or any part of the body, but as a rule is confined to a limited surface. It shows itself most frequently upon the scalp and face, especially in children.

ECZEMA PAPULOSUM (*Papular Eczema*).—In this form, often incorrectly called lichen, the predominant lesions are papules, although imperfect papules, partially developed vesicles, and even pustules, may also occur. The eruption appears as small, round, or acuminated hard papules, of different sizes, from a very small to a large pin's head. They vary in color from bright to dark red, are usually formed quickly, remaining for days or weeks, to disappear or reappear, and often persist for a long period. In some cases they are discrete, in others confluent, and seated upon a reddened base. They may be distributed over the entire surface, or limited to one or more regions. The subjective symptoms are more marked and violent than in the other varieties previously named, consequently the summits of the papules are usually scratched or torn, causing them to bleed. Papules will, therefore, often be seen having upon their apices a drop of dry blood, and the normal skin around and between them may likewise be covered with excoriations from the scratching. Papular eczema is most common during adult and old age. It usually invades the arms and lower extremities, especially the flexor surfaces, together with the trunk and thighs. While papular eczema in typical cases begins and ends with the formation of papules, yet in very many the latter lesions develop into vesicles, and even pustules, or the eruption is preceded by red, scaly patches, or all varieties heretofore noticed are present at the same time side by side—papules, isolated or in groups, usually predominating. Again, typical papular eczema, when torn from scratching, caused by the intolerable itching, will often be followed by a weeping state of the surface, irrespective of the presence of either vesiculation or pustulation.

Usually the eruption, after reaching its climax, gradually declines as resolution is accomplished, leaving only a slight redness and some desquamation as evidence of the previous inflammation of the skin, but the morbid process may be indefinitely prolonged by secondary changes into chronic eczema.

All of the four chief varieties of eczema just considered may become intensified, and often chronic, as a consequence of secondary changes resulting from continued morbid action.

Eczema Rubrum, or Eczema Madidans, is the most severe form of the disease. It may result from either the erythematous, vesicular, pustular, or papular varieties, and is characterized by a reddened, weeping, or tumefied, hot, and often shining surface, and at times covered with sero-purulent exudation. A portion or all of the epidermis may be shed, or, as is more common, the exposed and excoriated corium gives free exit to serum or an ichorous secretion, and often also to blood. The discharge, which varies in quantity according to the grade of the inflammation, dries into yellowish or yellowish-black crusts, which often partially or completely cover the eczematous surface, remaining for an indefinite period, unless removed artificially, the morbid action in the mean time going on beneath. If the crusts are removed by artificial means, a red, angry, swollen, and it may be an oozing surface, is exposed. This form of inflammatory eczema ordinarily becomes chronic in character, marked infiltration follows, and the parts involved become hard, rough, and thickened. It increases in severity, and shows no tendency to spontaneous cure. It may occur upon any portion of the body, but is especially observed to follow the erythematous variety about the flexures, as in the axillæ, about the elbow, the wrist, and the cleft between the nates and the groin. It is also noticed on the scalps and faces of infants, and the lower extremities of persons of advanced years.

Eczema Squamosum.—Squamous eczema is a subacute or chronic form of the disease, in which exfoliation of the epidermis is a marked feature. It may show itself either at the declining stage of any form of eczematous eruption, or last during the entire course of any of the varieties of eczema. It may be present with erythematous eczema, and often succeeds it. It also frequently follows the papular form, especially when the lesions coalesce, forming confluent patches. In marked cases of squamous eczema, the reddened, dry, and scaly patches are of all sizes and shapes. The extent and amount of desquamation depend upon the locality invaded and the persistency of the eruption.

In addition to the desquamation, there is also more or less infiltration of the affected surfaces. Squamous eczema may be prolonged for an indefinite period of time.

Eczema Fissum.—Fissured or cracked eczema is a chronic form of the disease which is generally observed upon those portions of the economy which are in almost constant motion. It shows itself particularly upon those parts in which the epidermis is usually very thick, as, for example, on the palmar and plantar surfaces. A peculiar mottled appearance in the parts of the hands and feet above referred to is at times observed before the cracks are formed from the congested true skin beneath, or the surface may have a white or dark leathery appearance, and be hard, dry, and unyielding. Fissures usually follow in these cases as the result of the primary congestion, the product of which is either unable to find exit through the thickened epidermis, or the escaped serosity excites a marked irritability of the now inelastic skin, which tears and cracks upon the slightest motion. Fissures are not confined to these surfaces, but may be found on any part of the body, and are especially noticed about the mouth and the joints on the fingers and toes. They may occur upon any portion of the surface of the skin, but are usually seen in the course of the natural furrows. Sometimes the fissures may be superficial and slight, as are noticed on the ends of the fingers and toes, or they may be extensive, as are found about the mouth and on the palmar and plantar surfaces.

When the cracks are deep and extensive, they show the red and angry true skin beneath and cause great pain and intense suffering upon the least movement; especially is this the case when the feet are involved. Some individuals have a peculiar predisposition to this form of eczema, usually in winter—the least change in the atmosphere producing fissures upon some portions of their integument. The debilitated, the poorly nourished, the strumous, the tuberculous, and those who depress and lower the vital powers of their body by mental cares, overwork, and the various forms of dissipation, are especially liable to be afflicted in this manner.

The slightest irritation in such subjects, such as the handling of irritants, the exposure to the variations of the weather, the frequent use of water and soap, will set up a fissured state of the skin. Thus, individuals, working in certain occupations, having a tender and often poorly nourished skin, are very great sufferers from cracking of the integument. I have frequently noticed that to be the case in compositors, in wool-pickers, the irritation being caused in some cases by the wool, in others by the dye in the wool; in mill-hands handling dyes and dyed goods; in plasterers; in those working considerably in water, and in many other manual occupations in which the hands come in contact with irritating substances. In addition to the secondary changes already alluded to, the integument from the morbid eczematous action may become exceptionally thinned or hypertrophied; in the latter event large and shapeless masses of tissue result with or without ulceration, or the surface may be hardened and thickened, entire or in patches, œdematous or warty. These latter states have been dignified by various writers by the names E. sclerosum, œdematosum, and verrucosum, but the use of these terms only confuses the reader, and unnecessarily increases the number of the varieties of eczema. In fact, in such cases the atrophy and hypertrophy which occur are directly the result of the congestion, with the attendant special deviation of tissue nutrition leading to either thinning, hardening, an œdematous state, or papillary growth in the parts. These secondary changes will be referred to more in detail when considering the local manifestations of eczema.

Diagnosis.—It will be seen, from the description already given, that eczema is one of the most common of all cutaneous eruptions, and it is therefore of the utmost importance to distinguish it from the many with which it is liable to be confounded. It is the most variable of all affections of the skin, but it has certain general phases by which it differs from all other cutaneous diseases. Thus it appears now as erythema, vesiculation, papulation, or pustulation with primary or secondary changes, alone or combined; again presenting a weeping or moist surface with or without the above changes; or with a mixture of all of these lesions in their various stages of development. This peculiar protean disease, while appearing under such varying forms, has some main features which are invariably present, and may be alluded to as follows: Redness and itching are constant symptoms, the former being either mild or severe, the latter being so slight as to occasion little or no inconvenience, or so intense as to be almost unbearable. Again, infiltration or thickening, varying, of course, in degree, is present in almost every stage and case of the disease. Finally, the continuous exudation of fluid or plastic material is another characteristic feature of eczema. It is a symptom that, in the majority of cases, appears during some stage of the disease. It is, in fact, a symptom only present in eczema, and is recognized by the trickling or flowing, in small or large quantities, of either a clear, milky, yellowish, or dark serum, or serum mixed with blood. This discharge, weeping, or moisture of the surface quickly dries into more or less yellowish, greenish, or brownish crusts, often seated upon the above moist base. While eczema has these general conditions, which typify it from all other cutaneous affections, yet there are certain diseases which resemble it where the distinction can be better and more accurately drawn by referring, which I will now do, to the characteristic features of each eruption which is liable to be confounded with it.

ERYTHEMA.—This affection is a hyperæmic condition, and is usually of short duration, with an absence of all the inflammatory symptoms of eczema. Thickening, vesiculation, papulation, crusting, scaling, and itching, so characteristic in eczema, are wanting in erythema.

ACUTE ZYMOTIC DISEASES.—Acute eczema might be mistaken at first for one of the acute zymotic diseases on account of the constitutional disturbance that may be present; however, the systemic disturbance is greater, the fever more constant, and the peculiar features of eczema are absent. Scarlatina, erysipelas, and small-pox are the most prominent affections with which eczema is liable to be confounded. In scarlet fever there is not only the history, perhaps, of contagion, but the rapid and irritable pulse, the peculiar state of the tongue, the involvement of the fauces, the appearance of the eruption, the second day of the illness, on the neck and face, and then spreading all over the body, desquamating about the eighth or ninth day, are a series of symptoms that never occur in any variety of eczema. Erysipelas resembles in some respects eczema, especially of the face. Erysipelas is usually a severe disease, with more or less constitutional symptoms, accompanied with a shining, tense, and swollen state of the parts, with a smarting or burning sensation; no discharge occurs, except after the disease is well established, or when blebs follow, or in its decline, or in the phlegmoides or grave variety, symptoms which are peculiar to erysipelas, and are absent in eczema. Further, erysipelas spreads rapidly, tends to invade the scalp and all adjoining regions, with a well-marked line or border between the affected and natural skin. Eczema, on the other hand, never passes through these rapid changes, rarely invades the scalp from the face, and the outlines of the patches are poorly defined. Lastly, small-pox, in its papular stage, may be mistaken for papular eczema of the face and upper portion of the body.

In small-pox, the gastric disturbance, fever, headache, and lumbar pains, and the eruption on the hard and soft palate are sufficient to remove all doubt.

HERPES.—Herpes and herpes zoster sometimes resemble eczema, although the vesicles in the latter are smaller and are not as flat as those in the former affections. The peculiar grouping and definite but short course of herpes, the vesicles situated on a red base, which do not rupture but dry up, are sufficient to differentiate between it and eczema. Herpes zoster is attended with neuralgic pains, which are not present in eczema, and the eruption is distributed along the course of a nerve.

LICHEN.—Papular eczema is sometimes called lichen, but a wide difference exists between the two diseases. In lichen the general health may be affected, while in eczema there is little or no systemic disturbance. The papules of lichen develop slowly, undergo no change during their entire course, while those of eczema appear rapidly, frequently passing into other lesions. The papules of lichen are flat, pink-colored, covered with minute scales, with their centres somewhat depressed, while those of eczema are pointed and have a smooth, bright-red surface. Lastly, it will be observed that lichen-papules are followed by pigmentation, which will not occur in eczema.

SYCOSIS.—The diagnosis between pustular eczema and sycosis of the beard is often difficult. Sycosis is an inflammation of the hair-follicles, beginning in the deeper portions, ascending to the surface, loosening the hairs, which can be easily removed without pain, and developing pustules, papules, or tubercles, or all combined. In eczema the inflammatory action is superficial, commencing in the papillary layer. The hairs are not usually loosened except in very severe or chronic cases, and on extraction give rise to severe pain. In some exceptional cases the inflammation in eczema may involve the deeper structures; the pus, passing down, gradually loosens the hairs, but this is rare. The process may, in addition, extend to the surrounding regions devoid of hairs; in sycosis, the follicles alone are involved, unless accompanied by some complication. In sycosis there is very often a deep-seated pain or stinging sensation, with more or less tenderness, while in eczema itching is generally the most prominent symptom.

Dermatitis.—Simple inflammation of the skin, known as dermatitis, produced by heat, poisons, acids, alkalies, or any material that may excite such a condition, is distinguished from eczema by its history, and the rapid disappearance of the eruption on the withdrawal of the cause.

Rosacea.—Erythematous eczema is distinguished from rosacea by its more general infiltration and distribution over the face and adjoining region. Eczema is present at all periods of life, rosacea more especially at puberty, middle and old age. In rosacea there is usually evidence of acne-spots, scars, dilatation of the superficial capillaries, furnishing the best indications of the disease not being eczema.

Psoriasis.—Typical psoriasis, with its small red, slightly elevated points, or larger patches covered with peculiar whitish scales, which can easily be removed, exposing a bleeding corium, should not be mistaken for eczema. The eruption in psoriasis may, through the use of medicine, or the advance of the disease, change, the infiltration becoming more marked, the scales disappearing, and such a condition may in many respects resemble eczema. The history and course of psoriasis will always point to a dry, uniform eruption, characterized by the presence at one time of many whitish scales, and involving by preference the scalp and extensor surfaces. On the contrary, eczematous patches will show a history at some time of moisture and a polymorphous eruption, the spots fade gradually into the healthy skin, the scales, if any are present, are thin and sparse, and the disease involves by preference the flexor surfaces. As both affections may involve the scalp, the diagnosis is sometimes difficult. The patches in psoriasis are well defined, manifesting a tendency to clear in the centre, and the scales are abundant and dry, while in eczema the infiltration gradually shades into the healthy skin, there being no tendency in the beginning to heal in the centre, and the scales are thin and scanty.

Seborrhœa.—Seborrhœa may be mistaken for eczema, especially on the scalp and other hairy parts. In seborrhœa there is no discharge, the surface is simply covered with yellow, flat, or often dirty-colored, greasy crusts, which upon removal expose a surface that is either pale and not at all altered, or red and dry, at times slightly glazed, and showing distended sebaceous follicles. In eczema, on the contrary, there is often a discharge with infiltration, the scales are drier, less abundant, and well attached to a thickened and hyperæmic surface. In seborrhœa oleosa there is a discharge, but it is oily, and not of the fluid or plastic nature of that of eczema. In some cases these two affections may exist at the same time, or the one precede the other. Thus, severe seborrhœa may excite eczema, and *vice versa,* and in such states the history and course of each case, with a clear understanding and separation of the local changes, will demonstrate which affection has been primary and which secondary.

Pemphigus.—The large isolated blebs of pemphigus vulgaris are never observed in eczema. That variety described as pemphigus foliaceus bears some resemblance to eczema, but the history, course, and symptoms, particularly the constitutional disturbance in the former, and the absence, usually, of itching and infiltration, always exclude the latter affection.

Scabies.—This disease presents, at the beginning, a resemblance to eczema—more, perhaps, than any other cutaneous affection. All the lesions of eczema may be observed during its course; the vesicles are, however, more scattered, not so confluent, and have connected with them little black lines or furrows, at the ends of which the itch-mites are imbedded, and may be detected by the aid of a needle and the microscope. It often happens in scabies that these furrows have been destroyed by scratching or by treatment, and then the only way of distinguishing it from eczema, or detecting the exciting cause, is by the history of contagion and the locality affected. The contagiousness of the disease, and its attacking by preference certain regions, as the fingers, hands, anterior surface of the arm, and axillæ, in both sexes, the breast and nipple in the female, the penis in the male, and the buttocks in children, are strong proofs against the eruption being primarily eczema. Sometimes even these valuable indications fail, from an inability to glean any history of contagion, and the part or parts involved may be in such a high state of inflammation, from scratching and applications, as to entirely mask all the evidence of the true nature of the disease. In that event the diagnosis will depend upon the results of treatment. The use of antiparasitics will lessen the irritation and afford relief if it be scabies, but if it be eczema there will be no change, but rather an aggravation of the eruption.

Syphilis.—The lesions of syphilis are sometimes mistaken for eczema, but it much more frequently happens that an ordinary inflammation of the skin is termed a specific affection. In syphilis, whether of the erythematous, vesicular, papular, or pustular variety, the history of infection, the signalization of the introduction of the poison into the system by syphilitic fever and other constitutional symptoms, the involvement of the glands and mucous surfaces, and the presence of either stains, ulceration, or cicatrices, are characteristic features which are wanting in eczema. It occasionally happens, however, that even with these evidences the diagnosis is difficult, especially in eruptions of the scalp, face, anal and genital regions. Syphilitic lesions that involve these parts usually present the following features: On the scalp a pustular eruption, or red and raw patches, with adherent crusts and slight superficial ulceration, and sometimes cicatrices, also the presence of an unpleasant odor not occurring in eczema; on the face, particularly in infants, large, flat, red, and indolent papules, being either separate or in circular groups, and somewhat scaly; on the genital regions the same form of lesion may be present, occasionally slightly changed by the moisture of the parts, or the surface may be red, raw, and indolent—symptoms, with others, that indicate the syphilitic nature of the eruption. The subjective symptom of itching, that is generally spoken of as being so constantly absent in syphilitic eruptions, and relied upon often as a means of diagnosis between it and eczema, can not, as I have already stated, be depended upon in this connection.

TRICOPHYTOSIS.—Ringworm, in various parts of the body, may simulate eczema, or it may, by scratching and applications, occasion, at the same time, an eczematous eruption. Ringworm of the scalp is distinguished from eczema by its history of contagion; the surface has a dirty, scaly, deadened, circular appearance, the outlines of the latter sometimes being erased in severe and chronic cases, and the hairs lack lustre, are split up, and broken off. Ringworm of the beard is similar in appearance to that of the scalp, with often more inflammatory action; the patches tend to clear in the centre; their borders are also somewhat elevated, scaly, and slowly creep from point to point; the hairs become loose; occasionally the surface is covered with papules, pustules, tubercles, and assumes a baggy condition. In eczema of the scalp there is usually moisture; scales, if present, are of a light color, covering a surface that is red, often infiltrated; the diseased patches are not so well defined, and the hairs are usually unaffected. When eczema attacks the beard, there is no tendency to spread in the manner just cited, or for the affection to disappear in the centre; the hairs are usually unchanged, and the inflammatory action is not so severe as in ringworm. All doubt can finally be set at rest by removing some of the scales or hairs, placing them beneath the microscope, and ascertaining the presence or absence of the fungus of ringworm.

Ringworm of the body is usually easily distinguished from eczema, by its beginning in a small point, and developing into red, circular, desquamating patches which tend to heal in the centre, while spreading peripherally. Eczema and ringworm, however, occurring about the genitals, have some points in common, in the red, raw, and intensely itching surface; and, in fact, the two affections may coexist, the eczema being excited by the irritation. The parasitic disease can always be detected by the advancing border of the eruption, and the use of the microscope will make the diagnosis complete.

Favus.—The peculiar, yellowish, cup-shaped, friable crusts of favus can seldom be mistaken for eczema, but the latter may occur as a complication. The appearance, however, of these characteristic crusts, or some cicatrices, and the presence of the parasite, as shown by a microscopic examination, would demonstrate conclusively the nature of the affection.

Lupus.—Lupus vulgaris can at all times be differentiated from eczema by its chronic and destructive course—the red, glazed, and scaly patch having soft, gelatinous tubercles around the border of the diseased surface. Lupus erythematosis may bear even a stronger resemblance to erythematous eczema, but the history, the firm attachment of the scales to the surface, the involvement of the sebaceous glands, and the absence of itching, are sufficient to distinguish it from the latter disease.

Pediculosis, Capitis, and Corporis.—Lice on the head or body will excite lesions which closely resemble eczema, and often give rise to an eczematous eruption, but the detection of the pediculi and their nits is all that is necessary to complete the diagnosis. Pediculosis may also occur on the scalp as a secondary complication of eczema, and in such cases the eruption may extend beyond these parts to the neck and face, or it may be seen on other portions of the body. Pediculosis corporis causes abrasions of the integument very much like eczema; the presence of hæmorrhagic spots over the surface, especially around the shoulders and loins, should at once excite suspicion, and the finding of the lice and their nits in the folds of the clothing establishes the diagnosis.

Pediculosis Pubis.—Crab-lice, which infest the inguinal and pubic regions, and at times also the thighs, abdomen, the front of the chest, the axillæ, beard, eyebrows and lashes, occasion an eruption which has been mistaken for eczema. When these regions are involved, a careful examination should be made, and, if the pediculi can be detected as dark specks clinging to the base of the hairs, the diagnosis is clear.

Dysidrosis.—This rare affection is of a vesicular nature, occurring upon various portions of the body, by preference the palms and sides of the fingers of the hand, and sometimes resembles eczema. The pearl-like vesicles which are developed in this disease are isolated, do not rupture, but dry up, and the epidermis after a time becomes macerated, thus differing very much from the same class of lesions in eczema in their formation, distribution, and course; the latter disease appearing also on other parts of the body, and being attended with more marked inflammation of the skin.

PITYRIASIS RUBRA.—This rare disease is distinguished from eczema by its uniform and intense redness, the abundant epidermic exfoliation, the marked symptoms of a burning sensation; itching and infiltration, so common in eczema, being usually absent.

EPITHELIOMA.—Severe cases of this disease, with the ulcerated surface and hard, everted edges, do not in any way resemble eczema, but the superficial variety, which appears sometimes as a thin, scaly mass on the face, and on its removal, or being picked off, exposes a moist and often bleeding surface, which soon becomes covered again with the same kind of a crust, resembles to some extent, and is occasionally misnamed eczema. The sharp, defined border in the form of epithelioma, just referred to, together with the absence of thickening, and the solitary or limited number of lesions, presents a marked contrast to the fading border, the infiltrated surface, and the multiplicity of the lesions of eczema, and its presence perhaps on some other part of the skin.

PARÆSTHESIA.—Paræsthesia may give rise to a condition like eczema, or it may develop a secondary inflammation of the skin. The history of paræsthesia, the absence of an eruption at the outset of the disease, the involvement of certain localities, the paroxysmal nature of the symptoms, and its occurrence in neurotic cases, and often at certain seasons of the year, distinguish it from eczema.

PRURIGO.—Prurigo, a very rare affection, in one case coming under my observation was mistaken for eczema. The chronic course of the disease, its development early in life, the formation of papules that may be of the natural color of the skin, pale or red, irregularly distributed, with predilection for the extensor surfaces, the enlargement of the inguinal glands, and the presence of spots of pigmentation, with the constant and irresistible desire to scratch, are all characteristic symptoms, indicating a markedly different disease from eczema.

IMPETIGO AND IMPETIGO CONTAGIOSA.—In both these affections the pustules are larger and more isolated, and the resulting crusts are larger in size and darker in color than those of eczema. In pustular eczema the eruption occurs in patches, or spreads until a large surface becomes red, raw, and secreting more or less pus, which dries into large, firm crusts, the opposite condition being seen in the irregularly scattered pustules of impetigo. In the contagious variety of impetigo there is usually a history of its spread by contact, or several members of the same household are affected by it.

Pathology.—The pathological changes in eczema will vary according to the stage and duration of the disease. In the acute stage the capillaries are engorged, and there may be a partial or diffuse redness of the skin, and an effusion of serum, plasma, and even blood may follow. Neumann * demonstrated these changes on the skin of animals by friction with croton-oil. He selected for the purpose of his experiment a rabbit, and rubbed croton-oil into the ear for ten or fifteen minutes, and watched its results for several hours beneath the field of the microscope. Rhythmical contraction of the vessels was first observed, being at one time full of blood and at another empty; afterward dilated, followed by permanent stasis; the ears, which were normally transparent, now became opaque, swollen, hot, and, within a few hours, numerous vesicles appeared with serous contents. At the end of forty-eight hours the animal was killed, and the tissue was found to be filled with serous fluid and a great quantity of cells.

The researches of Biesiadecki † show the changes observed in both the papular and vesicular varieties. The papillæ are enlarged in breadth and length, being filled with serous fluid and cells; the connective-tissue corpuscles are remarkable for their size and number. Numerous spindle-shaped cells are observed, extending from the papillæ between the deepest cells of the rete mucosum, which they crowd apart, and are prolonged, even to the epidermic layer. The cells in the mucous layer form a dense network, penetrating it in all directions. Within this network are seen somewhat swollen epithelial cells, whose protoplasm has a granular appearance. This circumscribed infiltration of the papillæ develops the papule of eczema. In the continued development of this morbid action a vesicle is formed by an increase of the new formation of cells within the papillæ, the superficial cells of the mucous layer swell up, possibly rupture, and so elevate the epidermis. The spindle-cells are here found even more copious, and act as nutrient canals, and no doubt convey the element of nutrition to the mucous layer. In instances of rapidly developed eczema they are found in great numbers, and form a dense network. With the increased quantity of these cells there is likewise a larger amount of serum exuded, which is often so abundant as to push forward the epidermis, developing a bleb. The removal of this epidermis causes the fluid to ooze out, forming moist eczema. This poured-out product, which may be a clear yellow or milky fluid, differs in no way microscopically from ordinary serum. Biesiadecki also states that when pus-cells are present they have their origin from the connective-tissue corpuscles. Virchow, Cohnheim, and other pathologists, on the contrary, have shown that pus-cells are derived both from the blood and from the cell elements of the affected tissue. The investigations of Gaucher, Vulpian, Heitzmann, and others, also show that the epidermis, no doubt, plays a most active part in the initiative step of this inflammatory disease. For example, accord-

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* Hand-Book of Skin Diseases, New York, 1872, p. 167.

† "Beiträge zur physiol. und pathol. Anat. de Haut." Sitzungsberichte der Wiener Akad., vol. lvi., p. 225, 1867.

ing to Gaucher,* vacuoles are formed within the mucous layer, seemingly by the distention of individual cells with fluid, which uniting form vesicles.

Chronic eczema exhibits many different changes, depending entirely upon the duration of the disease. The skin is inflamed, but much less actively than in the acute variety; it is also thickened, hard, and more or less infiltrated; the papillæ are enlarged, often to such an extent as to be observed, in some cases, by the naked eye. The infiltration may involve the entire corium, and may also extend even to the subcutaneous cellular tissue. In addition, there may be pigment deposits in the mucous layer and in the corium, especially about vessels, the lymphatics are enlarged, and, in long-continued inflammation, the fat-cells disappear, the connective tissue becomes hardened, and the follicles and glands may be destroyed. Finally, many of the changes just alluded to point to the probable nervous origin of the eruption, which has been referred to, particularly by Fox,† who believed that in eczema both cells and vessels play an important and somewhat independent part, in obedience to a nerve paresis, and Hebra ‡ was also of the opinion that faulty innervation is the most important element in the production of eczema. Bulkley,# Bronson,^ and others, have recently expressed similar views.

Etiology.—Eczema is one of the most common and obstinate affections of the skin. Statistics carefully compiled—which space at my disposal in a practical work of this nature will not admit of being referred to in detail, and, if stated, would not be of any special utility to the practitioner beyond the mere knowledge of figures—show eczema to be more frequent in certain countries than others. In the United States, and especially in the large cities, the percentage of reported cases of eczema among the cutaneous diseases appears to be greater than in Europe. In Philadelphia at least thirty to thirty-five per cent. of all cases of diseases of the skin, coming under my observation, are eczema. It occurs among all classes and at all periods of life, and is neither infectious nor contagious. Clinical experience shows it to be rather more frequent in the male than in the female. Certain persons have a peculiar predisposition to its development; strumous subjects, and those having light hair and complexion, being more prone to it than those of the opposite temperament. The hereditary character of the disease can occasionally be recognized by tracing it to a part or the whole of the family, or to one or more gen-

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* "Arch. de Phys. Norm. et Path.," 1882.

† Skin Diseases, American edition, New York, 1873.

‡ On Diseases of the Skin, vol. ii., New Syd. Soc. Trans., p. 140, London, 1868.

Op. cit.

^ Eczema, its Pathology and Treatment, Journal of Cutaneous and Venereal Diseases, vol i., No. 5, p. 132.

erations. Individuals so affected are usually born with a weak skin, just as other organs of the body are often in a debilitated condition at birth. The skin of persons in ordinary health is not usually affected by any constitutional or local derangement, or, if so, only very mildly, and quickly subsides. On the contrary, in the unhealthy the least change in the system, or the slightest external irritation, may develop an obstinate eczematous or other cutaneous eruption. Cases of this nature will generally be found to have also associated with them a derangement of some other part of the body, as, for instance, a functional disorder of one of the viscera. Eczema, from clinical experience, is therefore no doubt directly traceable to some constitutional impairment, that may either be from a peculiar predisposition or from an acquired cause. In referring, which I shall next do, to the constitutional and local causes of eczema, I wish it understood that I believe, in speaking of the latter, that whatever may be the source of the irritation the disease is only developed when there is present some faulty condition of the system.

Constitutional Causes.—The use of improper and unsuitable food, either in too large or too small quantities, especially in infants and growing children, acts as an exciting cause. Imperfect assimilation often supervenes under such circumstances, accompanied by the numerous disorders that it produces, any one of which would be sufficient for developing eczema. Thus, the retention in the system of the elements of gout and rheumatism from the above, or even other causes, and their circulation in the capillaries of the skin, often furnish the exciting cause. Again, certain diseases of the viscera, especially of the lungs, heart, liver, and kidneys, and of the blood-vessels, are active in calling the disease into existence. A striking instance of this kind is found in imperfect action of the kidneys, the deficiency in excretion leading in a similar manner to the retention of the waste products, and thus inducing eczema. Another may be observed in a varicose dilatation of the subcutaneous veins, particularly when involving the rectum and lower extremities ; the impeded circulation is quickly followed by serous exudation ; the activity of the capillaries and lymphatics is arrested, the effete elements are retained, and these combined conditions excite an eruption upon these parts, which is very difficult to either relieve or cure. The appearance of eczema about the anus, perinæum, and lower limbs can very often be traced directly to a diseased state of the veins in these regions. In a similar manner a change in the character of the blood, either through the circulation of certain abnormal products, as bile, pus, and drugs, or from the effects of pregnancy, lactation, malaria, anæmia, fevers, vaccination, wounds, improper hygienic surroundings, and other causes, by which the life-current is depleted or vitiated, may lead to an eczematous eruption.

Eczema often takes its origin in the various disorders of the gastro-intestinal canal. Dyspepsia is, perhaps, the most common of these disorders, with its long chain of symptoms of either excessive or impaired appetite, heart-burn, eructations, an uncomfortable feeling at the pit of the stomach, and constipation, often alternating with diarrhœa. Patients so affected will usually be attacked about the face, hands, and arms. Another of the same class of causes is dentition, which occasionally sets up an irritation of the mucous membrane, which becoming reflected throughout the entire tract, disturbs digestion, no doubt producing some pernicious effect of the nervous system, and thus develops and augments the disease. The examination of the gums in these cases will show the mucous membrane to be intensely congested, hot, and tumefied, attended with evidence of a derangement of the gastro-intestinal canal ; the free use of the lancet to the parts, which I have frequently resorted to, will soon allay all irritation, relieve the imperfect digestion, lessen the eruption, and settle conclusively the cause of the appearance of the eczema. Intestinal worms, hæmorrhoids, and fistula in ano, are also other instances of disorders of the gastro-intestinal canal that may give rise to eczema by either their reflected irritation or by the tone and vigor of the system becoming lowered by their presence. Eczema is likewise generated through the many derangements of the nervous system. It is in this way that neuralgias, nervous debility, exhaustion, shock, excesses of all kinds, especially from mental and bodily labor, and the various ailments of the system act in developing this disease. Eczema is often excited through a disordered condition of the genital organs. In the male it may be occasioned by varicocele, orchitis, hydrocele, phimosis, paraphimosis, affections of the bladder, particularly irritability, gonorrhœa, spermatorrhœa, and stricture.

In the female, eczema may also be excited by any one of the ovarian and uterine diseases. In young women, from disordered menstruation, and also in those who have reached the climacteric period of life ; the eruption appearing either upon the scalp, face, neck, or extremities.

Local Causes.—The local causes which give rise to this disease are very numerous, yet they require 'suitable soil upon which to act for the existence and continuance of the eruption. Thus the skin of one class of individuals can be brought in contact with almost every irritant material, with little or no impression, while with others the least change of the weather, or the slightest irritation from any source, lights up a mild or severe eruption. It must, however, be borne in mind that the former class, even in the most robust health, may occasionally, by certain local causes, as either climatic changes, occupation, the use of dyes, tobacco, etc., so depress and enervate their vitality as to render themselves susceptible to the disease. Local causes, however, in the majority of cases, only call at once into existence the inherent susceptibility of the system.

Atmospheric changes are, no doubt, among the most important causes that excite eczema. For instance, the skin of some persons is susceptible to the least variation in the atmosphere, from warm or hot to cold, or *vice versa*, and from dry to moist. Cold weather and high winds, by checking perspiration or chilling the surface, will bring about eczema, or aggravate or cause an old eruption to reappear which had previously disappeared with the advent of summer. In the latter season certain eczematous eruptions, chiefly those in infants, will also at times burst out with renewed vigor, after lying apparently dormant during the cold weather. In a similar way, heat, dryness, or moisture in the atmosphere, acts in some cases in developing or aggravating the disease. As an example of the former may be named the action of the heat of the sun on exposed portions of the skin. Further, the elevation of the temperature of the body with excessive perspiration, the acrid condition of the secretion, or the friction of the moist folds of the skin, or by the contact of clothing, occasions the disease. Again, the heat, whether dry or moist, of the various baths, especially the Turkish or Russian, may have the same effect upon a sensitive skin. Occupation is, perhaps, next in importance as an external cause. Exposure to all kinds of weather, or vitiated or heated air, fires, soap and water, together with sitting, standing, or walking too much, are also conducive to the disease.

It might be well, in this connection, to refer more in detail to the injurious results of the excessive use of water and soap for cleanliness or for the toilet. Water alone may excite eczema if used excessively in connection with certain substances or in washing certain parts of the body ; also in bathing, applying water-dressing, and fomentations. Simple or compound soaps provoke upon the skin of many persons one or the other of the varieties of eczema. The ordinary soft or potash soap, sapo viridis or green soap, by its injudicious use in certain affections, as scabies and the different forms of eczema, may increase or excite the eruption. Mild and intense forms of eczema frequently follow the external use of acids, alkalies, mustard, cantharides, capsicum, croton-oil, tartar emetic, turpentine, tar, the mercurial and copper salts, arnica, belladonna, sulphur, chrysorobin, chloral, chloroform, and many other medicinal substances. The same result ensues in handling dyes, dyed goods, some woods, or in coming in contact with certain plants or vegetable substances. An illustration of this is the inflammatory effect of the poison-vine (*Rhus toxicodendron*) and poison-tree (*Rhus venenata*) on those susceptible to their influence. Other fruitful sources of eczema are uncleanliness, the irritant action of clothing, especially dyed and woollen under-clothing, and the effects of either pressure or friction from bands, dresses, corsets, trusses, instruments, saddles, and crutches. Finally, eczema may be occasioned by or follow many other cutaneous eruptions, such as psoriasis, erythema, and herpes zoster, or by the irritant action of either the vegetable or animal parasites. The latter, especially the louse, itch-mite, bedbug, flea, or mosquito, give rise to scratching, which is one of the most prolific causes of the development of eczema.

The finger-nail in scratching, a prolific cause of eczema and other cutaneous eruptions, may not be the only means to assuage the irritation, but there are others which are sometimes employed, such as brushes, combs, etc. One of the most violent cases of eczema I have ever seen was brought about in this way : the patient, a butcher, having scabies, endeavored to relieve the irritation by scraping the surface, especially around the thighs and limbs, with his cleaver ! In a like manner, eczema of the scalp is often induced in the effort to scratch the scalp or other hairy parts of the body with brushes or combs, or by the inordinate use of these toilet articles.

Treatment.—In considering the treatment of the most frequent, obstinate, and at the same time the most curable affection of the skin, the management of the standard varieties, and their secondary changes, just referred to, will first be discussed ; after which the eruption, as it occurs in the infant, and upon the different regions of the body, will receive special consideration. In entering upon the treatment of the disease, however, two important indications are always necessary : first, the detection and removal, if possible, of the exciting cause, and all sources of irritation ; and, secondly, to modify or cure the morbid condition of the skin. In regard to the first, it is obvious that while the disease may be modified by treatment, yet it will often be impossible to effect a permanent cure as long as the exciting cause or any source of irritation exists. Thus, for example, in eczema arising from gout or rheumatism, it would be useless to expect or hope for a cure as long as the abnormal elements of these affections remain in the body. The eruption may for a time disappear, but a relapse is liable to occur sooner or later, until the original disorder has been eradicated. It will not always follow, on the other hand, that with the removal of the exciting cause the eczema will at once subside ; the alteration in the skin may be so decided as to require in addition a patient and tedious course of treatment. The factors which frequently play an active part in producing or aggravating the disease, may be improper internal or external medication, or any of the numerous sources of external irritation. Many of the so-called tetter specifics, or blood-purifiers, really increase or prolong the eruption, until the patient is compelled by necessity to seek the physician's aid. Again, many of such preparations as Fowler's or Donovan's solutions, and the iodides, which to those well informed are valuable drugs, become in the hands of the ignorant often the most injurious. In truth, these and other remedies may be useful at one stage of the disease and injurious at another, and therefore, when taken by patients upon their own responsibility, will very often aggravate the eruption. It is well, therefore, in the majority of cases, particularly if the physician suspects that the patient has been self-treated, or that the eruption has increased under the administration of the internal or external medication, or both combined, to discontinue, or give an expectant treatment, and watch the result. Again and again have I —as well, no doubt, as many others—seen the eruption disappear under such circumstances without the least interference upon the part of the physician. External medication alone, which has just been alluded to, may in a like manner, either from applications of improper or too strong agents, such as the various tetter-ointments, or from the use of stimulating remedies at the wrong stage of the disease, produce the most harmful results. Scratching, rubbing, and tearing the skin are also injurious, and from which patients must either exercise some restraint or be restrained. In a like manner the wearing of flannel and dyed goods, in contact with the inflamed skin, and the excessive application of water with or without soap, are often fruitful sources of irritation, which must be removed before improvement can be secured.

All atmospheric changes, and other means of irritation that prove harmful, should also at once be remedied. Lastly, the parts involved should, if necessary, be placed at rest. Every organ is universally admitted to need rest when disordered, except the skin ; and this important part of the economy may become inflamed, and yet patients continue in their active duties, expecting a cure to be effected by internal and external medication alone. Is it reasonable to suppose, for instance, that eczema of the hands can be easily relieved or cured while the patient is pursuing the occupation that originally gave rise to the disease ? Can the genital organs, when inflamed, recover their healthy state while subjected to the irritation excited by the friction of the clothes in walking ? Can the legs respond well to treatment while the sufferer constantly stands or walks upon them ? The answer is, that these cases imperatively need or demand rest. Rest is not only a benefit or an assistance at certain periods of eczema, but it is also sometimes an essential element for the ultimate cure of the disease. Yet, while it is an element of much good at certain times of this disease, at others it is also harmful, and should only be enforced when necessary, and then neither too rigidly nor too long in duration. Remember that the opposite state of rest, motion or activity, unless contra-indicated, is productive of benefit to the skin, as well as all the organs of the body.

The second indication in the treatment of eczema is to modify or cure the morbid action of the skin by the employment of either internal or constitutional remedies that may affect the cause of the disease, or by the use of local means that act upon the diseased surface. In some, internal medication may be all that is necessary, while in others local remedies may alone act efficiently. Experience has led me, however, to view eczema as being dependent upon systemic disturbance, and therefore in the majority of cases I usually recommend both internal and local treatment.

CONSTITUTIONAL TREATMENT.—Abundant evidence has shown that most cases of eczema are benefited by the use of general treatment. Cases appear, however, where local measures alone will suffice. The distinction should be made after a judicious and careful examination, and then managed accordingly. When general treatment is demanded, it should be instituted as soon as possible, and continued without interruption until the purpose for which it was intended has been entirely fulfilled. In the first place, diet and hygiene are both more or less essential in the general management of eczema. In reference to diet, it is important that it should always be suitable to each case, whether it be the acute or chronic form. Thus, certain individuals, particularly those that are plethoric or dyspeptic, will often require a restricted or mild diet, while others will demand the most nutritious food. Hygienic measures are equally as important; proper rest, sleep, bathing, suitable clothing, and ventilation, good air, sunshine, and regular exercise, walking, riding, and massage, unless contra-indicated, will often be of the greatest assistance in the treatment. Nursing is also of the utmost value, particularly in young children and old persons. Preparing and administering properly the food and medicine are essential in many at both periods of life, as well as in carrying out suitable hygienic measures, and in making the local applications in the manner in which they are required.

Generally the treatment should be commenced by correcting any abnormal condition of the secretions; cathartics and diuretics are usually of service, particularly in the acute variety. The moderate unloading of the bowels by a purgative or laxative prepares the system for the more successful action of other remedies. They also—with agents that promote the action of the kidneys—lessen the cutaneous congestion, and thus afford much relief. Blue mass or calomel, with or without some additional cathartic, will often answer the purpose. Sometimes a saline aperient alone, or following the mercurial, will be most suitable. Cream of tartar, Epsom, Rochelle, and the various aperient salts, with or without iron or a bitter tonic, are all valuable. The following combination can be employed with advantage:

℞	Magnesii sulphatis	ʒ v.
	Ferri sulphatis	gr. x.
	Acidi sulphurici dil	ʒ ss.
	Tinct. cardamom	℥ j.
	Infus. coptis trifoliæ	q. s. ad ft. f ℥ v.

M. Sig.: A tablespoonful in a wineglassful of water two or three times daily. The quantity of the magnesia and iron can be increased or decreased, according to the requirement in each case. Quinine and strychnine may be added, if desired.

The saline and alkaline purgative waters of Saratoga, Epsom, Kissingen, Carlsbad, and Friedrichshall also are of service.

In cases characterized by marked constitutional excitement, the skin being inflamed, often hot, and very irritable, moderate blood-letting will unload the capillaries and allay the active symptoms. Again, tartar-emetic, aconite, ipecacuanha, veratrum viride, gelsemium, strophanthus, and digitalis, are all valuable remedies, given in small doses, alone or with neutral mixtures, as spirits of Mindererus, to relax the skin and produce a prompt and beneficial effect upon the eruption.

The kidneys may be rendered active by the above means, especially if the skin is very inactive, or by the use of such alkalies as potassium or sodium acetate, in doses of from ten to twenty grains in water, or combined with sweet spirits of nitre or infusion of digitalis. The diet should be light, especially in the acute form, and any alimentary derangement corrected according to the indication present—one may need pepsin, bitters, or mineral acids, and another alkalies or one of the silver salts.

Imperfect assimilation, and the various disorders which it gives rise to, may be corrected by an occasional blue pill, followed by a saline, together with the toning up of the digestive organs. If the patient possesses a rheumatic or gouty diathesis, diaphoretics, diuretics, and alkalines are of advantage, with or without aperients. Thus, the potassium or sodium acetates, in from ten to twenty grains, three to six times daily, are often useful in rheumatic patients. Salicylic acid, sodium salicylate, the lithia salts, and the alkaline natural-spring waters, alone or combined, will prove of advantage in both rheumatic and gouty subjects. The following will be found of service in the latter class of patients:

℞	Extracti colchici acet	gr. viij.
	Extracti digitalis	gr. iv.
	Extracti colocynthidis co	gr. xvj.
	Quiniæ sulphatis	gr. viij.

M. Ft. pil. no. xvj.
Sig.: One pill three or four times a day.

Strychnine, cod-liver oil, malt, and the various bitter tonics, are beneficial in those who are debilitated, or present evidence of imperfect nutrition. Iron in the form of one of the salts, tinctures, wines or sirups, or any of the chalybeate waters, by its tonic action upon the system renders most efficient service in eczematous subjects, particularly in those who are anæmic. The sirups of the phosphates and the hypophosphites are also valuable.

Arsenic is a powerful and valuable agent in eczema, but its indiscriminate use is often followed by injurious results. It should not usually be employed in the acute stage, as it very often aggravates the eruption. It is especially indicated in the chronic form, alone or combined with iron and other preparations, and is equally efficacious in nervous cases and those that are accompanied by malaria. It is not usually prescribed if digestive disorders exist, but even in such cases in very small doses, one or two drops before meals, the result from its use is often most gratifying. In administering arsenic I usually prefer to use arsenious acid or the arsenite of sodium, for the reasons already stated under therapeutics (page 59), and the drug is continued for a time after all eruption has disappeared. The following pill I frequently use in chronic eczema with benefit :

℞	Extracti calami....................	gr. xxx.
	Extracti digitalis....................	gr. v.
	Sodii arsenitis	gr. j.
	Extracti ignatiæ	gr. ij.
M.	Ft. pil. no. xxx.	
	Sig.: One pill three times a day.	

In some cases of chronic eczema, where arsenic will not be well tolerated by the stomach, it can be used by the rectum in the form of a suppository, or hypodermatically. One quarter to one half a grain of arsenious acid, or arsenite of sodium, may be given in this way three or four times a day. In injecting either one of the preparations just referred to, into the subcutaneous cellular or muscular tissue, from one twentieth to one half of a grain may be administered once a day. I have in this manner often built up old eczematous cases by tonics and good, nutritious food, and at the same time brought the system thoroughly under the influence of arsenic by injecting it beneath the skin.

Nervous subjects often require, in addition, the preparations of phosphorus, the use of electricity, or a complete change of air and scene. The mercurial salts, especially the corrosive sublimate, in very small doses, are often followed by successful results. Viola tricolor has long been employed by French practitioners with good effect, and also by Piffard, who recommends one or two drachms of the herb, with a half to one pint of hot water, to be made into a tea, and taken in twenty-four hours, either alone or combined with senna. He also uses the fluid extract of the drug in five- to ten-drop doses, once, twice, or three times daily, before meals. Tar and sulphur have both been used with advantage in chronic cases; the former can be given in the form of pix liquida, in from one to six grains, three times daily, and the latter as milk of sulphur, or, what is even better, by drinking some one of the sulphur-spring waters that exist so abundantly throughout this country.

Calcium sulphide, in from one thirtieth to one grain, three or four times daily, will prove of service in both acute and chronic eczema. It is particularly useful in the pustular variety, often lessening rapidly the tendency to the formation of pus. Potassium chloratis has an analogous action, in from one- to ten-grain doses, several times daily.

Further, the derangement of the system, or any of its organs, must always be considered, and treated accordingly. For instance, those that have a predisposition to the development of eczema, those that inherit a weak skin, or those having what is known as the scrofulous diathesis are successfully treated with a good, nutritious diet, bathing, fresh air and plenty of out-door exercise, massage, cod-liver oil, malt, the ferruginous preparations, potassium chloratis, quinine, strychnine, and sometimes arsenic, providing the affection is not in the acute stage. Again, a change of climate will often exert a most decided influence in assisting to overcome the general debility of this unfortunate class of sufferers.

The subjective symptoms of itching, burning, or pain often become so distressing as to call for the administration of suitable constitutional remedies to afford relief from the persistent and continuous suffering. Opium and its salts are of service in some cases, but entirely fail in others. Belladonna or hyoscyamus, pushed to full doses, at times acts with good effect. Paraldehyde, chloral, and the bromides, especially the two latter in combination, often act promptly and effectually. I very often resort, in cases of great irritability of the skin, especially when there is some disorder of the alimentary canal, to the use of suppositories containing one or more of the drugs just named.

℞ Extracti opii,
Extracti belladonnæ,
Extracti hyoscyami .... āā gr. iv.
Olei theobromæ .... q. s.
M. Ft. suppositoria xij.

Sig.: Insert one into the rectum every hour or two until relieved.

In case the opium will not agree with the patient, but aggravates the eruption, it can be replaced by adding five or ten grains of chloral to each suppository. Chloral is valuable used in this way, particularly in infants and children. The dose is from one to five grains in each suppository. Bulkley* recommends the tincture of gelsemium for the itching, beginning with ten-drop doses, to be gradually increased every half-hour until the patient is relieved, or has experienced some of the physiological effects of the drug.

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* Eczema and its Management, New York, second edition.

Local Treatment.—While constitutional treatment alone may frequently cure eczema, yet the addition of judicious external applications will, in the majority of cases, be of advantage in assisting to remove the disease. If, however, no sufficient evidence exists for administering a general treatment, owing to the temporary cause having in the mean time disappeared, then attention should be directed to the local measures alone. Viewing the disease as being dependent upon constitutional impairment, I generally employ both methods at the same time, unless the reasons just set forth indicate its purely local nature. The local treatment, whether it be used in conjunction with general measures or alone, is of the utmost importance. The first question to be considered, before determining the local means to be employed, is the history of the case, and the objective and subjective symptoms that may be present. Inquiry instituted in this manner will reveal the condition of the patient's skin, whether naturally weak, sensitive, or perfectly healthy before the outbreak of the eruption. The duration of the disease, if a first attack or a relapse, and the region and extent of surface involved, will likewise be shown. It will also point out the condition of the affected skin, the presence of few or many primary or secondary lesions, and whether the disease is active, passive, or on the decline. Having thus discovered the stage and variety of the disease, as well as any peculiarities that the skin of the patient may possess, the external treatment can be carried out usually in the most satisfactory manner. If these precautions, however, be neglected, unsuitable applications are liable to be made, with injurious effects. Thus, for example, the treatment which is appropriate for one stage is often unsuited for another; the means employed for the acute are ineffective in the chronic; and, in a like manner, that which is effective in the chronic is usually irritating or harmful in the acute.

The next step in the local treatment is the removal of any hairs, secondary products, or foreign material which have collected upon the part, in order that the desired application can be made directly upon the unhealthy surface. Too often the opposite is the case, the poured-out products are allowed to remain or are but partially removed, or the applications are dusted or smeared on from time to time without once cleansing the surface. The diseased parts are then not at all medicated, and the foreign elements irritate and still more aggravate the eruption. Patients and nurses must be impressed with the necessity of cleansing the surface and exposing the disease according to the method thought best by the attending physician. The usual means employed to loosen and remove scales, crusts, and any extraneous matter is with either oils, fats, water-dressings, or water and soap. The surface to be cleansed is generally saturated with an oily preparation, and the crusts, scales, or other foreign material that may be present disappear after one or more applications, and, in case of much difficulty, the addition of water and soap brings about the desired result.

Acute and Subacute Eczema.—The principle of local treatment in both the acute and subacute stages of eczema, after cleansing the diseased surface, is the employment of means to protect, soothe, and sometimes produce a mild astringent and stimulating effect, in order to modify and relieve the inflammatory symptoms. Certain precautions should, however, be considered in using local applications. The skins of all persons are not alike; some are more sensitive than others, and therefore agents which are beneficial to one will often prove harmful to another. Remedies that are indicated may be used cautiously upon a part, and not the entire surface at once, and, if the effect is good, it can be made general, and should be persisted in as long as the result is beneficial. If the application should fail, or excite and aggravate the inflammatory symptoms, others should be used, and, in case all means do more harm than good, then all active treatment must be discontinued and the expectant method adopted. It is also well to bear in mind and particularly to caution patients that acute eczema is frequently irritated by both air and water, especially soap and water. The applications usually employed in acute eczema are lotions, medicated dusting-powders, and fatty and oleaginous substances. If one is not suitable to the surface, another, or a combination, may be.

Water.—Water is an element which is much abused in the toilet of eczematous patients, and often aggravates acute cases; if used in moderation it will agree with some, but, on the contrary, not with others, and, of course, it should not be hard, but should be made soft by some mucilaginous substance in it. Water, alone or medicated, can be employed to both cleanse an eczematous surface and to allay the inflammatory symptoms. It can be used at all temperatures, and can be medicated with many remedial substances. Thus, hot or cold fomentations of water, or sponging the surface with it, often relieves the inflammatory action and allays the local irritation. The combination of water and a fatty substance is also of service—the inflamed skin, after being anointed with some fat, should be immersed in a water-bath kept at the temperature of the blood. Medicated water, in baths and lotions, is a most agreeable form of treatment for acute eczema. The emollient and alkaline baths, or both combined, are perhaps the most valuable of medicated waters, and often prove most grateful in alleviating the hot, tense, and itching condition of the skin. Or the water may be medicated and used in the form of a lotion. Lead-water and laudanum, two ounces of each to a pint of water, will be found useful. Lime-water, glycerine, and water, in equal parts, form an acceptable application. Boracic acid, or borax, or sodium bicarbonate, or sodium sulphite, or sodium hyposulphite, one to two drachms of either to a pint of water, are valuable lotions. I frequently employ, with good success, from two to four drachms each of powdered alum and borax, in three to four pints of hot water, applied to the surface with old pieces of muslin. It must be mentioned, in this connection, that in using lotions care should be taken not to place too much material in contact with the part. The muslin or substance used should be thin and not bulky, permitting free evaporation from the part, otherwise it may act as a poultice, developing heat and moisture, and aggravating the inflammatory symptoms.

I have also employed with benefit, in vesico-papular and papular eczema, carbolic acid, a drachm to the pint of water. Tilbury Fox recommended the following effective application: An ounce of fine levigated calamine-powder, two drachms of glycerine, half an ounce of oxide of zinc, and six ounces of water—to be well shaken, and sponged frequently on the part. The sediment which is deposited on the skin should be allowed to remain, as it excludes the air from the inflamed surface. An equally serviceable lotion is composed of zinc oxide four drachms, glycerine one ounce, rose-water two ounces, lime-water three ounces. To make it more sedative a drachm of spirit of camphor, or six drachms of laudanum, may be added. If stimulation is required, as in the circumscribed papular variety, ten or fifteen grains of thymol, or a drachm of either liquor picis alkalinus or liquor carbonis detergens, can be added. Black-wash and yellow-wash are both valuable in the papular variety of acute eczema, fulfilling the indications mentioned—protection with moderate stimulation.

In applying water alone or medicated it will often be of the utmost value, immediately after mopping the parts, to apply one of the dusting-powders, while the surface is yet moist, in order to exclude the air from the sensitive skin.

Dusting-powders are most useful when the surface is more or less covered with redness, vesiculation, papulation, pustulation, or a serous exudation. They may be either perfectly bland and soothing, or they may have some astringent, sedative, or other remedial action. Among those that may be employed are starch, arrowroot, rice, buckwheat, lycopodium, talc or French chalk, magnesium carbonate, zinc oxide, pure and impure; zinc carbonate and oleate, bismuth subnitrate, and lead carbonate. The most emollient and soothing are the first three; the magnesium, zinc, bismuth, and lead are astringent as well as sedative. One or more of these remedies can be combined with other medicinal substances with advantage. For protection and for soothing I generally employ equal parts of arrowroot and rice-powder, and, if there is much itching and burning, the addition of a little camphor or morphine, or both, will be of service. When a mild astringent action is indicated, a drachm or two of powdered zinc oleate to one half to an ounce of powdered arrowroot is of utility. The following combinations have also been found beneficial:

℞	Pulv. marantæ	℥ j.	
	Pulv. zinci oleatis	ʒ ij.	
	Pulv. camphoræ	ʒ ss.	M.
℞	Bismuthi subnitratis	ʒ ij.	
	Pulv. amyli	ʒ vij.	
	Morphinæ acetatis	gr. j.	M.

Dusting-powders may be used with advantage, after the application of fatty and oleaginous substances and lotions, to protect the surface and retain the medicaments upon the parts.

Anderson recommends, as a good application in acute eczema, a cold potato-starch poultice, with a small quantity of absorbent powder sprinkled over its surface.

Ointments are much better adapted for many cases than either powders or lotions. They may be simple or medicated. They are of service not only in removing scales, crusts, and other products of eczema, but they also protect and act remedially upon the inflamed surface. It is essential that they should be free from rancidity and well prepared. They should be carefully smeared over the inflamed surface, and, if possible, kept at all times in contact with it, thus excluding the air and preventing the formation of crusts. This purpose can be accomplished by spreading them upon muslin, lint, or cotton, and placing them over the parts, or by saturating the surface with oil and applying a light cloth or bandage over it. The dressing should be changed two, three, or more times daily, according to the indications in each case, and the pent-up secretions permitted to escape, otherwise they may give rise to considerable irritation. If the successive layers harden into a firm coat and act as an irritant to the diseased surface, they must be removed by some appropriate oily substance. The best of the soothing ointments are the zinc oxide or carbonate, one drachm to the ounce of cold cream; and bismuth oxide or subnitrate or lead carbonate, one drachm to an ounce of lard.

Cold cream, or cucumber-ointment, alone or combined with a drachm or two of arrowroot, is bland and useful. The ointments of bismuth, lead, and zinc oleate are serviceable in many acute cases. Diachylon-ointment,* which is a valuable soothing application, is prepared as follows:

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* The following are the details of its preparation: "The olive-oil should be first mixed with two pounds of water and heated; then, while fresh water is constantly poured in and the mixture stirred, freshly sifted litharge should be gradually added. The whole should be kept in motion until cooled, and, lastly, the lavender-oil should be added. In

℞ Olei olivæ opt.	℥ xv.
Lithargyri	℥ iij, ʒ ij.
Coque, dein adde	
Olei lavanduli	ʒ ij.

M. Ft. ung.

This ointment, which is yellowish in color, and of the consistence of butter, can be applied to any part of the body, except where covered with hair, on which it is unsuitable, on account of its tendency to mat the hair, and thus preventing its absorption by the skin.

The following combination, suggested by McCall Anderson, is very effective in many cases:

℞ Pulv. camphoræ	ʒ ss.
Pulv. zinci oxidi	ʒ ij.
Glycerini	ʒ ij.
Adipis benzoati	℥ j.
Cochinillini	gr. j.
Olei rosæ	m. j. M.

The ointments that I frequently use are:

℞ Pulv. marantæ	ʒ j.
Plumbi carbonatis	ʒ j.
Cerati Galeni	℥ j.

M. Ft. ung.

℞ Zinci carbonatis	ʒ j.
Bismuth subnitratis	ʒ j.
Olei anthemidis	gtt. x.
Ungt. aquæ rosæ	℥ j.

M. Ft. ung.

℞ Hydrarg. chlorid. mit.	gr. x.
Pulv. amyli	ʒ j.
Pulv. camphoræ	℈ j.
Pulv. zinci oxidi	ʒ j.
Adipis benzoati	℥ j.

M. Ft. ung.

℞ Ung. zinci oleatis	℥ j.
Extracti opii,	
Extracti belladonnæ	āā gr. v.

M. Ft. ung.

An acceptable sedative and astringent application is:

℞ Ung. plumbi oleatis	℥ ss.
Pulv. marantæ	ʒ ss.
Olei anthemidis	gtt. v.

M. Ft. ung.

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cold weather an extra ounce of olive-oil should be allowed for every pound of the ointment." Hebra on Diseases of the Skin, vol. ii New Sydenham Society, London, 1868.

The following is especially of service in papular eczema :

℞ Ung. bismuthi oleatis................ ℥ ss.
Pulv. camphoræ..................... gr. x.
Pulv. amyli........................ ʒ j.
Morphinæ acetatis.................. gr. j.
M. Ft. ung.

Oils are even more grateful than ointments in some cases of eczema.

For this purpose any bland oil can be used, e. g., olive, linseed, sweet almond, lard, palm, cotton-seed, and cod-liver oil, alone or combined with other suitable remedies. Thus, equal parts of sweet-oil and lime-water are useful. Again, the following will often act well in either the erythematous or vesicular varieties :

℞ Olei olivæ......................... f ℥ iv.
Plumbi carbonatis.................. ʒ ij.
Zinci carbonatis................... ʒ ij. M.

Another excellent prescription is :

℞ Olei amygdalæ...................... f ℥ iv.
Calaminæ........................... ʒ ij.
Olei anthemidis.................... gtt. x. M.

CHRONIC ECZEMA.—It is often impossible to decide absolutely when the acute stage ends and the chronic begins. The former, however, is usually of short duration, from several days to a few weeks, to be succeeded frequently by the latter. The secondary changes which then occur, especially the infiltration, require decided measures, to stimulate the action of the absorbents and induce a reabsorption of the exudation.

Baths.—Baths become, in this stage, the most effective means of not only removing scales, crusts, and other secondary products, but also of arousing the dormant blood-vessels and lymphatics to renewed activity. While they will not be suitable in all cases, the irritation and even inflammation occasionally increasing under their use, yet in the majority of chronic eczematous conditions they are most valuable additions to the treatment. Thus the hot-air, electro-vapor, simple and medicated vapor baths assist in relieving the red, infiltrated, rough and scaly condition of the surface, by awaking the sluggish skin to activity, and softening and detaching the scales and crusts, if any are present. The medicated vapors, especially the sulphur, have very often the additional effect of relieving the itching which may exist. The medicated liquids are not only useful in cleansing the surface, but may be made soothing by the addition of starch, bran, and sodium bicarbonate ; stimulating by sulphurous and boracic acids ; and astringent by alum, tannic, and gallic acids.

Soaps.—Soaps may frequently be employed with advantage, not only for the purpose of cleansing the surface of scales, crusts, and all extraneous material, but also for their stimulating or caustic action, and as a convenient method of bringing certain medicinal substances in contact with the skin. Either the soda or potash soap can be employed alone or combined with other remedies. The best example of the former is the well-known castile soap, in which can be incorporated sulphur, tar, naphthol, one of the mercurials, carbolic, boracic, or salicylic acid, forming special medicated soaps which are valuable in the treatment of chronic eczema. The potash or soft soap (sapo viridis) can be employed as recommended by Hebra, until the infiltrated epidermis is softened, macerated, and removed, then washing the surface and applying a suitable ointment, generally the diachylon. The green-soap treatment of chronic eczema is more adapted to localized patches of the disease, and even then the integument of Americans, which is usually very sensitive, will frequently become worse under the use of so harsh a procedure.

Tar.—Tar, and some of its products, as carbolic acid, creasote, naphthol, and naphthaline, are among the most valuable external remedies that can be employed in chronic eczema, but contra-indicated in the acute stage, especially if there be much redness, elevation of temperature, swelling, vesiculation, and infiltration. In employing tar and its products, even in the chronic stage, care should be observed that they are diluted properly, and then applied first on a small area of the surface, in order to test their action upon the patient's skin. All individuals do not bear these preparations well, and occasionally a chronic eruption is aggravated by their employment into an acute condition. The forms of tar commonly used are wood-tar (pix liquida), coal-tar (pix mineralis), Burgundy pitch (pix Burgundica), terebinthina Canadensis (balsam of fir), all of which are cheaper, and therefore of more advantage to prescribe in dispensary and hospital practice than the more elegant preparations of oil of cade (oleum cadinum) and the oil of white birch (oleum rusci), which are more suitable for private practice. Any of the above can be combined in various proportions with ointments, oils, spirits, and soaps. In whichever form tar is used it should be firmly rubbed into the part with a piece of flannel, once or oftener daily, according to the condition of the skin. In some cases it is well to allow the tarry preparation to remain upon the skin until it is naturally cast off, while in others it becomes necessary to cleanse the surface with oil or water and soap. In many cases tar is better borne in the form of an ointment, especially where there are more or less infiltration and a tendency to the development of fissures. The proportion of the tar to the ointment varies with the requirements of each case. One or two drachms of the former is generally used to an ounce of the latter.

℞ Olei cadini.......................... f ʒ j.
Olei verbenæ....................... gtt. v.
Adipis benzoati.................... ℥ j.
M. Ft. ung.

The above is a useful combination, with or without zinc oxide or sublimed sulphur. Zinc and lead ointments, especially the diachylon, and the mercurials are valuable, as vehicles for tar and for the additional remedial action that they exercise upon the skin. Tar may be advantageously combined with olive, cod-liver, and other oils, for use upon the hairy portions of the body. Another excellent method of using it is in the form of a lotion, especially in regions covered with hair :

℞ Olei rusci.......................... f ℥ ss.
Olei lavandulæ..................... f ʒ j.
Aquæ Cologniensis.................. f ℥ vi.
M. Sig.: Rub firmly into the skin.

It can also be suspended in alcohol alone, or with the addition of sapo viridis. The tincture of witch-hazel and spirit of rosemary are also suitable solutions to which tar may be added. Among other valuable preparations of tar is the tinctura saponis viridis cum pice of Hebra, the compound tincture of green soap :

℞ Olei cadini,
Saponis viridis,
Spiritus vini rectificati............ āā ℥ j.
M. filtra et adde
Spiritus lavandulæ.................. ʒ ij.
M. et ft. lotio.

Bulkley recommends the following useful solution, which is miscible in all proportions with water :

℞ Picis liquidæ........................ f ℥ ij.
Potassæ causticæ.................... ℥ j.
Aquæ destillatæ..................... f ℥ v.

M. Dissolve the potash in the water and add slowly to the tar, in a mortar, with friction.

Sig.: Liquor picis alkalinus, to be used diluted.

McCall Anderson[*] states that an English pharmacist has discovered that by the addition of laminaria saccharina (Sea-Belt) to pix liquida, it is miscible with hot water in all proportions. Carbolic acid and creasote are useful in chronic as well as in acute eczema. They may be employed either as lotions or ointments for their stimulating and anti-pruritic effect. Carbolic acid, probably the better of the two, can be dissolved in water or added to any of the ointments or oils in the proportion of five to thirty grains to the ounce, decidedly enhancing their value.

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[*] *Loc. cit.*

Beta naphthol* and naphthaline have been used as substitutes for the tarry preparations in the treatment of chronic eczema. Of these two remedies the more useful and effective is naphthol.† It has a decided action upon the skin, and obtunds the sensibility of the cutaneous nerves. It is a serviceable remedy in rough, infiltrated, and irritable conditions of the integument, stimulating the absorbents, and at the same time being one of the very best anti-pruritic agents. I frequently employ—

℞	Naphthol	℈ i.	
	Unguenti plumbi oleatis	℥ ss.	M.

℞	Naphthol	ʒ ss.	
	Sulphuris sublimati	ʒ j.	
	Unguenti zinci ox. benz.	℥ j.	M.

Mercury.—The mercurial preparations are among the most valuable remedies that can be used in chronic eczema. They are particularly valuable in localized forms of the disease, and are more effective after the infiltration has lessened. The bichloride of mercury dissolved in water, in the proportion of from one to five grains to the ounce, sponged frequently over the surface, often lessens the inflammatory action, and allays the itching. The white precipitate and calomel in from five to sixty grains to the ounce of lard, cold cream, or benzoated zinc-ointment, are of great value. The red and black oxides are also of value, but the nitrate and oleate are more effective used in the form of weak ointments, or incorporated with tar, naphthol, or sulphur ointments.

Of the many remedies that are of service in the chronic stage of eczema, few are superior to sulphur, in from one half to two drachms to the ounce of some fatty substance. Ichthyol, which was introduced by Unna, contains a large percentage of it, and is also valuable.

Iodoform, chrysarobin, pyrogallic, salicylic, and boracic acids—the former four applied in the form of ointments, and the latter as a lotion in from ten to sixty grains to the ounce—are at times quite effective. Thymol, five to fifteen grains to the ounce of water or lard, as suggested by Crocker, is also useful. The glycerole of the subacetate of lead, introduced by Balmanno Squire, and prepared as follows, according to Bulkley's formula, is especially valuable in some cases :

℞	Plumbi acetatis	gr. cxx.
	Plumbi oxidi	gr. lxxxiv.
	Glycerinæ	℥ j.

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* See paper on Naphthol, by the author, Transactions of the Philadelphia County Medical Society, 1883.

† See paper on the "Treatment of Skin Diseases, by Novel Means and Methods," Transactions of the International Medical Congress, Copenhagen, Denmark, 1884.

Digest the acetate of lead and litharge in the glycerine (heated to 300° in an oil-bath) for half an hour, constantly stirring. Then filter in a chamber heated to 300°.

Sig. : Dilute the above from three to seven times with water and glycerine for application to the condition just named.

The various oils, especially chaulmoogra-oil, are useful. The application of vulcanized India-rubber was recommended by Colson, and afterward largely used by Hebra and Hardy. Beyond protecting the parts, excluding the air, and macerating the epidermis, its curative action is rather uncertain. It often aggravates the eczematous eruption by preventing the escape of the secretions and acting as an additional irritant. The same may be said of the medicated gelatine bandage introduced by Prof. Pick,* of Prague. While many useful and valuable remedies may be suspended in gelatine, as has been pointed out by George Henry Fox, Morrison,† Morrow,‡ and others, and kept in contact with the skin in a stable and fixed manner, with often effective results, yet, as a rule, they are open to the objection just referred to, and are only applicable to limited areas, and other methods of treatment have been found in the majority of cases to answer better.

In old patches of eczema, cantharidal collodion, tincture of iodine, liquor potassæ, and other caustic preparations, in varying strengths, are sometimes used as blistering agents ; but a better means to employ, only, however, when the disease is circumscribed and obstinate, is cauterization, either with the galvano-cautery or the actual cautery. Massage, compression, and bloodletting are likewise powerful and useful adjuvants in the treatment of the chronic stage of eczema.

Massage acts in a most happy manner, whether the disease be extensive or localized. In the subacute form, in which the surface is dry, slightly thickened, or covered with papules, massage awakens the action of the dormant absorbents, increases the circulation, lessens or arrests the itching, and very often restores the skin to its natural condition. In chronic cases, in which there is marked infiltration, the skin being hard, fissured, dry, rough, thickened, even to a leathery state, and in which all medication has failed, the judicious use of massage will not only break up all exudation, but likewise stimulate the absorbents and assist in removing the inflammatory products from the tissues, and also lessen the irritation and relieve the itching.

Compression, which is usually applied in the form of bandages or medicated plasters, protects the parts, limits the spread of the disease, lessens the muscular tension, tones up the dilated capillaries, prevents the escape of serum, and assists in removing the products of inflammation. The ordinary muslin or gum bandage, or the medicated plasters * recommended by Unna and others, are the means usually employed to make compression.

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* Prague medicinische Wochenschrift, No. 16, 1883.

† New York Medical Record, July 28, 1883.

‡ Journal of Cutaneous and Venereal Diseases, April, 1884.

Bloodletting is an efficient means of assisting to eradicate chronic eczema. It is usually accomplished by puncturing the eczematous surface with a small, pointed knife; the engorged blood-vessels are thus relieved, the circulation becomes equalized, the action of the absorbents is re-established, and the exuded products are removed from the tissues, which, with the assistance of suitable local applications, soon regain their normal condition.

GENERAL AND LOCAL VARIETIES OF ECZEMA.—Having thus far described the standard varieties of eczema, and their immediate secondary changes, I next propose to consider the peculiarities of the disease as it is observed in the infant, as well as in different portions of the body at other periods of life. Eczema may show itself upon all or any portion of the body, either covering the entire surface or being limited to certain parts. When it involves the whole surface of the skin, which is by no means a common occurrence, it is known as general eczema (*eczema universale*), in which the erythematous, the vesicular, or the papular or vesico-papular lesions, or all combined, are present. The eruption is more or less diffused, and attended with intense itching and burning. It may run a brief course, and disappear entirely, or, as frequently happens, in subsiding either leave a general irritable condition of the skin or one or more patches which may linger for some time. At times a general chronic eczema may follow the universal acute variety, in which the whole surface from head to feet is red, raw, thickened, and fissured, covered partially with crusts and scales, and intolerably itchy. Ordinarily, however, eczema manifests a preference for certain regions of the body, and appears in the form of one or more patches of all sizes and shapes, varying, of course, according to the exciting cause and the part attacked. As it exhibits peculiarities and modifications in its course, due to age and the part invaded, it will be necessary, first, to speak of eczema as it appears in the very young—the infant; and, secondly, its manifestations as seen upon certain localities of the body.

ECZEMA INFANTILE.—Infantile eczema is the most frequent of the cutaneous diseases of childhood; that is, from the birth of the babe until about the fifth year of age. The eruption presents at this early period of life certain characteristics not usually observed in the adult, owing to the soft and delicate structure of the skin in children. The integument at this time of life is exceedingly tender and sensitive, and therefore becomes more readily congested and inflamed from the least internal disturbance, as from improper or insufficient food, nervous excitement, etc.; or from the slightest outward irritation, as from the influences of heat and cold, or the too frequent use of soap and water. Infantile eczema may appear in the form of any of the varieties already described, usually beginning with erythema and running through all the primary forms of the disease, and attended with marked secondary changes. It ordinarily commences at a very early age as an acute variety, subsides into the chronic, and often remains stationary for years. The eruption may be mild or severe, and may involve all or a portion of the body. It generally appears about the head and face, the cheeks in particular being first affected with a variously sized reddened patch, with some papulation, and more or less heat, itching, and swelling. The local irritation causes the little sufferer to scratch incessantly. This gives rise to an increase of the disease, and the pouring out of serum, which dries into crusts and scales, which may in turn be torn off in the vain effort to obtain relief. The continued irritation may thus develop a reddened, raw, and excoriated surface, covered more or less with crusts and scales. In some, especially the scrofulous, the eruption will partake of the pustular variety, and cover at times the entire head and face; the surface being also the seat of high inflammatory action, pus is rapidly poured out, which desiccates into thick yellow and yellowish-brown crusts and scales, beneath which the parts are raw and exuding. This condition is commonly called *crusta lactea*, or milk-crust (see Plate IV, showing a case). The irritation is intense, causing the child to suffer great agony; the high grade of inflammation, the raw and torn surface, thickened and often enormously swollen and studded over with crusts, having a most pitiable aspect. The desire to scratch will continue unabated, even though the hands be muffled, and the child closely watched by day and by night. Sufficient sleep is often out of the question, the little one only dozing for a time, after having become thoroughly exhausted, to soon awake with renewed efforts to allay the intolerable itching. Children thus affected necessarily lose flesh, become pale, thin, take their food badly, and often pass into a marasmic state.

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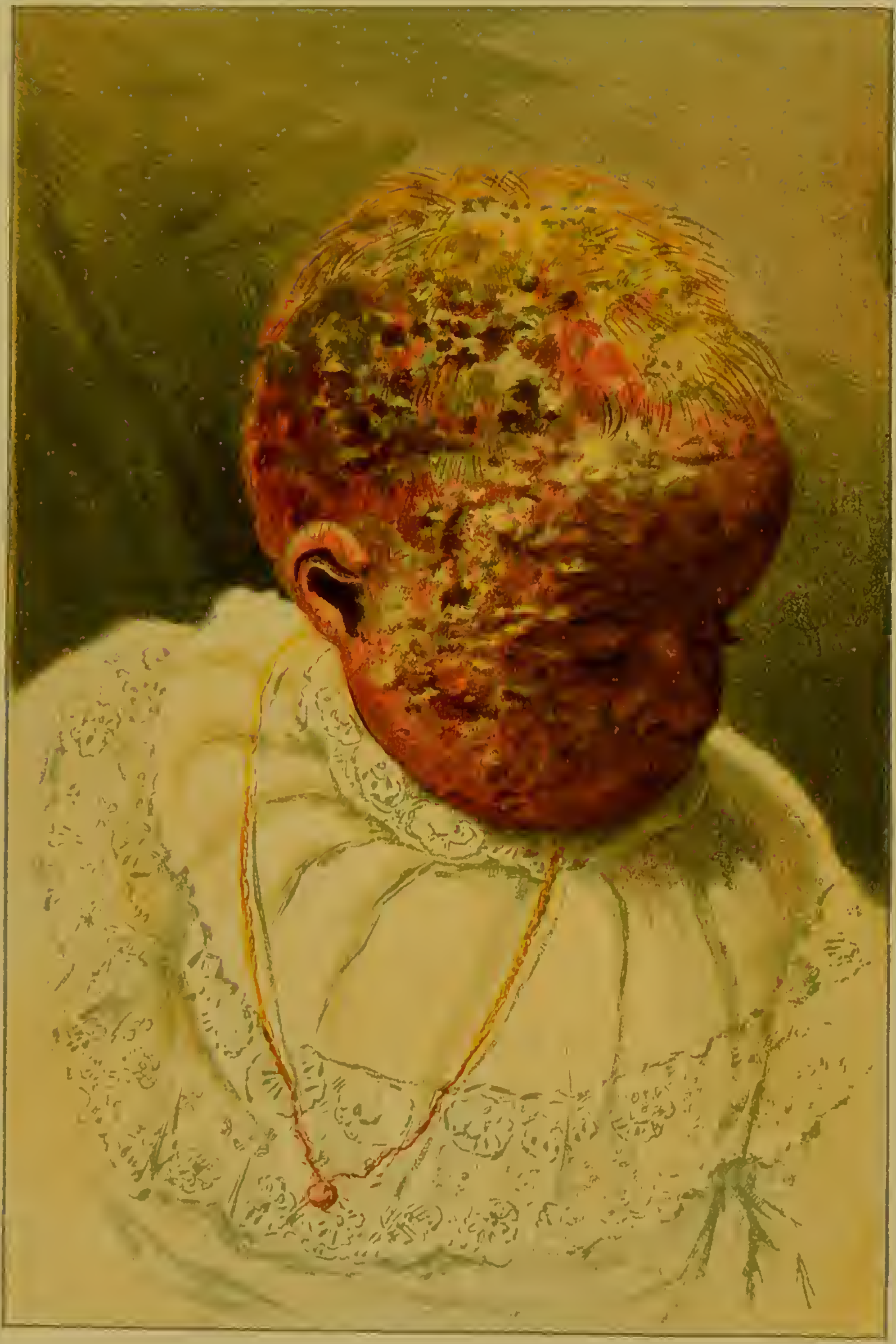
* See paper by author—Medicated Plasters in the Treatment of Diseases of the Skin—Transactions of Medical Society of the State of Pennsylvania, 1887.

At times the cervical glands, from the sympathetic irritation, will become enlarged, and cutaneous abscesses supervene, particularly upon the scalp, from the inflammatory action involving the sebaceous glands and deeper parts of the integument. These secondary lesions may appear at once or in successive crops. They exhibit a low grade of inflammation, and are attended with very little pain. They are of all sizes and shapes, in color a deep red or purple, being soft and fluctuating in some, and discharging in others a thin or purulent secretion,



From Nature—Infantile Eczema.

often mixed with blood. The ears are sometimes affected and become red, swollen, moist or dry, and frequently covered with scales. Fissures occur at the junction of the pinna with the scalp and at the lower margin of the lobule. The ears may be primarily affected in this manner, or by extension of the disease from the head or face. Again, the forehead may be the seat of eczematous patches, usually passing down from the scalp, or, when the eyelids are involved, the Meibomian glands become red, thickened, and increased in activity, the cilia stick together from the exudation, causing the eyelids to be glued together in the morning, and opened with great difficulty. The surface of the nose is usually exempt from the eruption, but the mucous membrane within the nostrils may be plugged up with crusts. Eczema is also frequently observed in infants in the flexures of the joints, and upon those regions where the integument is arranged in folds, or where one portion comes in opposition with another, as in the neck, around the axilla, the abdomen, the groins, and the nates. These surfaces, which are red, raw, and moist from close contact and friction of the two parts, constitute the condition described by some writers as *Eczema Intertrigo.* It appears and disappears usually very rapidly, often relapsing, however, to again disappear upon proper treatment. It will not cause, as a rule, much itching, but when occurring about the groins and nates the pain is often very great from the chafing of the clothes and the irritant action of the discharges.

Finally, eczema may attack both the superior and inferior extremities. The eruption, especially when it attacks the bends of the elbows and knees, is often attended with considerable infiltration and cracking, causing much pain and interference in the ordinary movements. After the severe character of the eruption has passed away the surface becomes generally red and thickened, showing also more or less papulation, with the formation of scales.

The diagnosis of infantile eczema can generally be made without any difficulty. The only diseases with which it is liable to be confounded are syphilis, pediculosis, vegetable parasitic affections, scabies, and urticaria.

Infantile syphilis resembles eczema more perhaps than any other of these affections. The history, however, of the case, the senile facies, and the presence of snuffles, frequently establishes the diagnosis before an examination of the eruption is made. Syphilis in the infant has a predilection for certain parts, as the face, especially around the mouth and nose, the anus, buttocks, and genital regions. The eruption is of a darker color, like raw ham, and the papules, if present, are larger and more flat than in eczema. The syphilitic eruption has also a circular, puffy, and dry appearance, attended with the formation of a few dirty, adherent scales, but being red and raw about the anal and genital regions from the irritation of the secretion of these parts and the contact of one surface with another. The characteristic moisture of eczema is not present except around the mucous outlets; neither is there the infiltration and itching so constant in the former affection.

Pediculosis may give rise to an eruption that resembles eczema, but the presence of the insects or nits, the scattered lesions, and the peculiar hæmorrhagic spots on the body, would be conclusive against the disease being eczema. Vegetable parasitic diseases rarely affect infants in arms; two cases of ringworm, in which the little patients were less than nine months old, have, however, come under my observation—the one on the cheek, the other on the head. Both cases were traced to contagion. The first contracted the disease from the mother; the second from an older sister having ringworm, who nursed the infant. The parasite in both set up marked irritation on the surface very similar to eczema. The history of contagion, the circular arrangement of the patches, the elevated borders, and finding of the fungus by a microscopical examination, set all doubt at rest.

Scabies in infants may simulate eczema, but the development of the eruption between the fingers, the flexures of the wrist, ankles, and feet, its absence from the face and scalp, the history of contagion, and the discovery of the furrows terminating in one end in a vesicle or pustule, in which the acarus is imbedded, are features which distinguish it from the latter disease. Papular urticaria may resemble eczema. The acute and sudden development of wheals upon some part of the surface, which disappear to again reappear; the occurrence of scratched papules, with an erythematous surface and fading wheals, with the absence of moisture and infiltration, should prevent any error.

The etiology of infantile eczema has been incidentally alluded to in the consideration of the first part of this subject. It is important in this connection to again make some reference to its causes, as upon their detection and removal depends in great part the eradication of the disease.

Some infants are born with a predisposition to eczema or other cutaneous affections; that is, they have either poor blood, a weak, nervous system, or some of the organs, mainly the skin, are in a debilitated condition. Such a predisposition being present in the system, the slightest exciting cause produces the disease.

According to my experience, the most prolific source of infantile eczema is improper or insufficient food. In many cases it will be found that the infant has been given various articles of table-food which are unsuited for its delicate stomach. Irregularity in the time of feeding, whether frequently or at times at too long intervals, often produces functional derangement of the digestive organs, followed by an attack of eczema. The time of feeding, and the quantity allowed may be correct, but the quality of the mother's milk may be at fault. This latter may be due to debility or mental anxiety, or to indiscretion in diet on her part. Among the many other causes that excite eczema in infants are too frequent washing with strong soaps, which irritate the sensitive skin; neglect of cleanliness, scraping the scalp with combs and brushes to remove the sebaceous collections, exposure to heat and cold, and vaccination. The use of rough and harsh clothing, as flannels, dyed goods, and the negligent arrangement of bands, pins, and buttons, are also sources of the disease. In one case I examined, a pin run through both skin and roller by a careless nurse had been the starting-point of the eruption; in another, a large, hard, rough button; and in many, flannel and dyed goods brought in contact with the skin were the cause.

Constitutional Treatment.—The successful treatment of infantile eczema depends upon, first, good hygiene; the room should be properly heated, ventilated, and kept free from slops and soiled linen. The child should be properly but not tightly clothed, and taken out in the fresh air and sunshine daily for several hours. Great care must always be exercised to avoid changes of temperature both in the nursery and while out of doors. Rest and plenty of sleep are essential, and if they can not be procured naturally, owing to the irritation of the disease, the proper remedies should be administered. The diet should receive the strictest attention from those in attendance; the time of feeding should be regulated, say every two hours, and the infant should not be allowed too much at once. The quality of the food should be carfully ascertained, and, if poor, should be corrected. The mother's milk can frequently be improved by giving her certain nutritious articles, as milk, cream, broth, and cod-liver oil, and cautioning her against the use of those that conduce to a faulty state of her milk. Notwithstanding all efforts, the quality of her breast-milk may continue poor, and then it will be necessary to partially or completely wean the infant and substitute either a wet-nurse or artificial feeding; the latter often having to be resorted to from birth. The most efficient substitute for breast-milk is pure, fresh, undiluted cow's milk, sweetened with sugar, given in from two to eight tablespoonfuls at a meal. A little barley-water or lime-water may be added if necessary to prevent coagulation. Condensed milk, properly prepared with water, barley, or arrow-root water, is also valuable. Goat's or ass's milk, diluted with about one third of barley-water and boiled, can be advantageously employed, if diarrhœa exist. Imperfect digestion may be overcome by pancreatizing the milk, or adding to it a teaspoonful of some aromatic water, as mint or cinnamon water. A change from one form of food to another is often attended with good results. About the sixth month it may be well to add to the milk either a teaspoonful of wheaten flour or oatmeal, the latter especially, if there be constipation. All other forms of food should usually be interdicted until at or near one year of age, when animal broths, milk and bread, the yolk of an egg, slightly boiled, either alone or mixed with milk, can be given. Meat and other solid food should not be allowed until the child is at least fifteen or twenty months old, and even then it sometimes produces indigestion, develops an eruption, and must be stopped for a time. In older infants, when the gastro-intestinal irritation is great and the integument much inflamed, immediate improvement may be obtained by withdrawing their usual food, and placing them again upon a milk diet. It is well in the majority of cases of infantile eczema in the beginning of the treatment, especially if the alimentary canal is in any way at fault, to thoroughly evacuate it by the administration of calomel or mercury with chalk, rhubarb, or castor-oil, the doses to be graded according to age. I generally use calomel, occasionally adding a few grains of sodium bicarbonate, to be followed with a small dose of magnesium carbonate. This preparatory treatment, which washes out the disordered secretions, and often makes a marked impression on the irritable skin, should be repeated every second or third day, according to indications. Persistent indigestion may be removed by giving from one to two grains of pepsin, alone or with a half a drop of the tincture of nux-vomica, three times daily. If diarrhœa remains after the indigested food and acrid secretions are removed, warm applications may be made to the abdomen, and from three to five grains of bismuth subnitrate and from one half to three grains of Dover's powder may be given every three hours. Bismuth and chalk, rhubarb and chalk, chalk mixture, with or without a few drops of laudanum, and the fluid extracts of geranium, rhatany, hæmatoxylon, and kino, are also useful. In the majority of cases, however, the bowels are constipated, and require the laxative remedies previously mentioned. Manna, senna, or sulphur, may also be used. Frictions over the abdomen, with cod-liver oil, castor-oil, and tincture of aloes dissolved in olive-oil, are excellent means of overcoming constipation. When there are no contra-indications, and the infant is fed from the breast, the use of laxatives or cathartics by the mother will prove of service. Healthy, robust, plethoric infants respond promptly to mercurial cathartics, followed by one to two drachms of fluid extract of malt, after meals.

Among the systemic remedies which are of value in the treatment of infantile eczema, cod-liver oil and the sirup of the lactate of iron are the most effective. The compound sirup of the phosphates, sirup of the lacto-phosphate of lime, sirup of the hypophosphites of soda, lime, and iron, and the sirup of the iodide of iron, given in from three to forty drops in water, three or four times daily, are also valuable. Iron in some form is indispensable in many cases. The administration of alkalies to the mother, either in the form of one of the alkaline waters or of sodium or potassium acetate, ten to twenty grains, three times daily, often has a most beneficial effect. In infants artificially fed, and when the skin is hot, dry, and irritable, sodium acetate is the best remedy. If there is much constitutional excitement, rapid pulse, and marked irritability of the surface, sweet spirit of nitre or neutral mixture, with one thirtieth to one twelfth of a drop of tincture of aconite in each dose, is often followed by rapid amelioration of the symptoms. The pale, weak, and strumous are benefited by cod-liver oil, iron, the phosphates, hypophosphites, potassium chloratis, and at times very small doses of lime water. It should be remembered that in case the child will not bear cod-liver oil by the stomach, the inunction method can be resorted to advantageously. Minute doses of corrosive sublimate in from one hundredth to one seventieth of a grain, three times daily, are sometimes followed by marked lessening of the congestion and itching, together with a rapid subsidence of the eruption. The older French writers, and recently Piffard, commend viola tricolor, especially in the pustular variety of the disease. It can be given in the form of the powder, tincture, extract, or infusion—the latter is usually the most preferable. The dose of the infusion varies from ten drops to a drachm, gradually increasing the quantity until some effects are experienced from its use.

Arsenic is said to be well borne by children, even in comparatively large doses, but it often happens that the reverse occurs, and eczema becomes aggravated by its use. The fact is that each case requires to be carefully considered, and the constitutional treatment carried out accordingly. Some will improve upon proper diet or alkalines, with or without laxatives, and others upon tonics and alteratives. Arsenic is rarely necessary, and may, as a rule, be discarded from the therapeutics of infantile eczema.

Local Treatment.—Infantile eczema can not be treated locally in the same vigorous manner as in the adult, for, while the general indications may be similar, yet the delicate structure and extreme sensitiveness of the infantile integument render harsh measures unadvisable. Soothing applications are, therefore, demanded in the majority of cases, more especially in the acute forms, moderate stimulation being only permissible in the chronic variety of the disease. The affected part should not be washed too frequently, and soap should usually be avoided. Crusts, scales, and other extraneous material can be removed by an alkaline or emollient bath, alone or combined, or by some soothing oil or a poultice. A good alkaline bath, which is soothing and valuable, can be made by adding one half or a tablespoonful of either powdered borax or carbonate of sodium or potassium to one gallon of water. From two to four tablespoonfuls of starch or gelatine, to the same quantity of water, will form an emollient application which may be used in alternation with the former. The medicated water thus prepared should be dashed or mopped over the surface, and the parts lightly sponged dry, and not rubbed. If it appears necessary to use soap, either to cleanse the parts or for the purpose of mild stimulation, either chamomile, sulphur, borax, naphthol, or camphor soap can be employed.

The inflamed areas can be soothed and protected by either ointments, oils, dusting-powders, or lotions. The ordinary ointments, the benzoated zinc and others, often irritate the surface, and should not be employed. Cold cream, simple ointment, lanolin, and purified and prepared suet, are better adapted as bases for ointments for the tender integument of the infant. Powdered arrow-root, lead or zinc carbonate, oxide of zinc, bismuth subnitrate, one or two drachms of either to one ounce of one of the above bases, form most efficacious applications in acute infantile eczema. They should be spread on an old piece of muslin and applied to the surface. The following combination is especially useful:

℞	Pulveris marantæ....................	ʒ j.	
	Zinci carbonatis	ʒ j.	
	Plumbi carbonatis	ʒ j.	
	Ungt. aquæ rosæ	℥ j.	M.

It frequently becomes necessary to use a mild stimulant or alterative agent in order to relieve the irritation of the skin. The most serviceable and useful are the mercurials, sulphur, naphthol, camphor, and oil of chamomile. These agents can be added to one of the soothing ointments already named. Where the itching is severe, five to ten grains of calomel, ten to sixty grains of sulphur, three to thirty grains of naphthol or camphor, five to thirty drops of oil of chamomile, or one to three grains of carbolic acid in addition, will often afford the most happy relief. The ointments of the ammoniated, the red or yellow oxide, and the acid nitrate of mercury, are also valuable. More effective stimulation can be obtained when necessary by the addition of a small amount of one of the tarry preparations.

ECZEMA OF THE SCALP (*Eczema Capitis*).—Eczema of the head is of very frequent occurrence, and manifests itself usually as the erythematous, the vesicular, or pustular varieties, the lesion differing generally according to the age of the patient. In infants and children the pustular form is the most common, while in adults the erythematous and vesicular are most often encountered. In the adult, therefore, the latter two forms are generally observed as the initial lesions which tend to become chronic and develop slowly into that well-known secondary stage termed eczema squamosum. The eruption in its course may present at different times the erythematous, the vesicular, and pustular stages, followed by the formation of crusts and scales; on the contrary, it may begin in any form, and continue throughout its course unchanged. It may also present erythematous or vesicular patches upon one place, pustular in another, and a dry and scaly spot upon still another portion of the scalp. These conditions may be present at one and the same, or at different times. The disease may involve a part or the whole of the scalp. It may begin in one or more patches, and continue thus without spreading, or it may, as is often the case, extend over the entire region of the scalp, and even down behind the ears, on the neck, and forehead. The itching is usually decided, except in the pustular variety, in which it exists in a modified degree.

Eczema of the scalp, however, presents certain modifications due to the presence of the hair, its length, its thickness, and the various methods of dressing it, according to habit or the demands of fashion, that call for special consideration. These modifications depend upon the discharges matting together the hair, and forming adherent crusts and scales. Thus, a secreting eczematous state of the scalp occurring in an individual with the hair cropped short presents a different appearance from that which is observed in one having long, thick, bushy, and neglected hair. In the former the hairs do not become readily matted together, and, if matting occurs, they can be easily separated and the crusts and scales removed. In the latter, the exuding fluid entangles the hairs, which, with the crusts and mingled sebaceous secretion, form a compact mass. This matting together of the hair is increased by persons neglecting to either comb, brush, or disentangle it for fear of still more increasing the inflammation. The unkempt mass upon the scalp excites considerable irritation, and causes the parts to be thoroughly scratched. This stimulates the numerous sebaceous glands to pour out their contents, and the two secretions mingle upon the surface and, by decomposing and setting free fatty acids, produce a rancid, musty, disgusting odor. This repulsive condition attracts lice, and at times vegetable parasites, and has been termed, in Vienna, Plica Polonica. In one instance, in the out-door department of the Philadelphia Hospital for Skin Diseases, some two years ago, I observed a young girl, about fourteen years of age, who presented a loathsome appearance; upon separating the matted hair, and picking off some greenish-yellow crusts from the parts, the surface beneath was seen to be raw, covered with pus, and filled with maggots, from which issued a foul and sickening odor.

A swelling of the posterior cervical glands often occurs as an accompaniment to eczema capitis, with, at times, the formation of abscesses and loss of hair. These enlarged subcutaneous glands, which are sympathetically excited, increase or diminish in size as the affection becomes severe or improves. This swelling of the glands, as well as the formation of abscesses, happens more frequently in those who are scrofulous or poorly nourished.

This form of eczema may continue for years, if not arrested ; or it may, after lasting months, undergo spontaneous involution. In the latter event, in patients having long hair, when the eczematous fluid ceases to be poured out, the young and growing hairs push forward the old mass of matted-together material, and permit it to be easily removed by the scissors. As a rule, the condition just referred to, after the removal of the hair, is succeeded by a red and scaly surface which may continue to exfoliate epidermic scales for some time. In cases having short hair the cessation of the exudation and the falling off of the crusts is followed by the same squamous condition. The loss of hair which sometimes occurs is usually only temporary, the instances in which permanent baldness results being exceedingly rare.

The treatment of eczema of the scalp requires the removal of the cause, attention to the general health, if necessary, and the use of certain local measures, according to the variety and stage of the eruption. In case the disease be of the pustular variety, and the surface covered generally or partially with crusts, the long hairs pasted down or matted together by the exudation, the parts should be thoroughly saturated with some one of the oils—olive, sweet, almond, ergot, petroleum, or cod-liver oil—this softens up the mass, removes the crusts, and prepares the surface for further medication. If the exudation is great, and the crusting extensive, it may be necessary to leave the oil on for some hours. The application of one of the oils—I generally prefer ergot, on account of its also having some slight astringent action—should be repeated twice or three times daily for several days until the parts are relieved of the inflammatory products. In the event that it becomes necessary to use water and soap, some days at least should elapse before applying it, and then one of the medicated soaps, having in it either naphthol, tar, or corrosive sublimate, should be employed. Shaving and cutting the hair are unnecessary in the great majority of cases, and should in particular be avoided by girls and women having a long and luxuriant growth.

If pediculi or nits or any vegetable parasitic disease exist as a complication, they can be removed by solutions of mercury or copper oleate, and other appropriate remedies. After the surface has been cleansed or the complications removed, if the pustules continue to appear, or the erythematous or vesicular condition remains, the oil of ergot can be applied in the same way, or lead or zinc carbonate, or bismuth subnitrate, one or two drachms of either to three or four ounces of the former, can be used. In case a mild stimulant is required, equal parts of the solution of mercury oleate and oil of ergot are valuable. Tannic or gallic acid can be added to one of the oils, glycerine or petroleum, and applied to these parts. The following has proved of service :

℞ Hydrargyri chloridi corros......... gr. v.
Glycerini........................ f ℥ v. M.

The fluid extract of geranium is also valuable.

Oils, solutions, and even ointments should be lightly sponged or mopped over the surface, in order to avoid rough rubbing or irritating still further the parts. Soothing ointments can likewise be used, although I prefer oils and lotions, on account of their easy application. Zinc, lead, and bismuth ointments are most useful, and can be made stimulating when desired by the addition of sulphur, oil of chamomile, or a small quantity of naphthol. For a more marked stimulation, especially in the squamous variety, the various tarry preparations and mercurials are all valuable, beginning with a moderate strength, and gradually increasing until the desired effect is produced. Again, these same agents are most efficacious in the squamous variety used in the form of a lotion. Thus the oil of cade, a drachm or two to the ounce of either alcohol, spirit of rosemary, or five to ten grains of corrosive sublimate to the ounce of water, will be found of great utility. Very obstinate cases that resist all the ordinary remedies yield sometimes to the application of tincture of iodine or one of the various blistering agents. Oils are adapted to some, ointments to others, and instances occur which can not bear the least stimulation, owing to a peculiar sensitive condition of the skin. Great care should therefore always be observed to avoid stimulating unduly the scalp, thus increasing the eruption in the endeavor to do good.

Eczema of the Ears (*Eczema Aurium*).—Eczema may affect the auricle and the external auditory canal, and the hearing may suffer by the involvement of the latter part. The erythematous, vesicular, papular, and pustular varieties may attack these parts, or spread to them from adjacent surfaces affected with the disease. It occurs either as an acute or a chronic affection among all ages and in both sexes, but is more frequently observed in children and females. One or both auricles may be involved, usually both, and the disease may implicate the entire ear or be limited to certain portions. In the acute variety the ears are red and swollen, and are accompanied with mild or severe burning, itching, or stinging sensations. The morbid action may extend into the meatus, closing it, and producing temporary deafness. Very often, by the formation of vesicles or pustules, the whole or part of the auricle becomes covered with crusts, or is the seat of general redness, moisture, and considerable infiltration, with more or less desquamation. The eruption may be confined to the posterior surface of the ear, the natural depressions being the seat of fissures, disappearing at times to again reappear and spread over all or part of its surface. In other cases the external auditory canal is alone involved, being dry and scaly, and the seat of intolerable itching, vesicles appearing sometimes on the meatus and the membrana tympani. There may be in these cases a feeling of fulness, giddiness, noises, or temporary deafness. As a few of the direct causes that assist in bringing about these obstinate cases of eczema of the ears, may be mentioned exposure to changes of temperature, spectacle-frames, ear-rings, dyed fabrics, especially ribbons, uncleanliness, picking the auricle, the meatus, or the canal for the removal of wax, and acute or chronic catarrhal otitis.

It is often difficult to apply remedies on account of the anatomical arrangement of the ears. All scales and crusts should be removed, and soothing ointments of zinc, lead, or bismuth should be carefully spread over the affected surface. Sulphur or naphthol with extract of opium and belladonna can be added when necessary. After the acute stage has passed, ammoniated mercury, ten to thirty grains to the ounce of cold cream, is of advantage; also tar in large or small quantity, according to the indications, for stimulation is likewise of value. In the involvement of the canal the crusts or wax should be first softened with a few drops of oil of sweet almonds, and washed out occasionally with hot water. The following combination, painted in night and morning, will allay and sometimes remove the irritation:

℞ Plumbi carbonatis.................. ʒ ss.
Atropinæ sulph.................... gr. ij.
Ol. olivæ......................... f ℥ ss. M.

The canal may also be painted with tannic acid dissolved in glycerine, one to two drachms of the former to an ounce of the latter, or weak or strong solutions of zinc sulphate, carbolic acid, silver nitrate, or potassa caustica, or a thirty-per-cent. solution of the fluid extract of geranium. Care should always be exercised to prevent injuring the membrana tympani by the use of any one of these preparations, and agents should be at hand to counteract their effect in case of accident.

ECZEMA OF THE FACE AND NECK (*Eczema Faciei et Colli*).—Eczema frequently occurs on the face and neck, either by spreading down from the scalp or developing originally upon these parts. The eruption, however, when attacking the chin and neck has no special peculiarities, and it will not, therefore, be necessary to treat of it separately, beyond the general description already given in the first part of this chapter. On the contrary, eczema, when attacking the face, presents so many modifications in its general character, according as it affects the smooth or hairy surface and each individual part, as to call for a particular description of each condition and portion invaded. Eczema of the smooth part of the face may be either acute or chronic. It may appear in the form of any of the standard varieties, attended with more or less secondary changes. The erythematous, vesicular, and pustular are common; the former more particularly during and after adult life, and the latter in children. The entire surface may be red, infiltrated, moist, crusting, and scaly; or patches may be noticed on the forehead, eyelids, cheeks, nose, and lips. The itching is most intense, especially in the chronic form the sufferer often filling the buccal cavity with air and pounding with the hands on the surface of the cheeks and adjoining portions in a vain effort to get relief.

Relapses frequently occur on the least exposure or the slightest cause, owing, no doubt, to the delicate nature and the highly organized condition of the skin of the face. Naphthol and carbolic acid are beneficial in these cases, from five to twenty grains of the former or from three to ten grains of the latter to an ounce of cold cream, or the same quantity of lanolin. A drachm of lead or zinc carbonate, or arrow-root, also added may be of service. The ointments of zinc oxide and bismuth subnitrate are likewise valuable. The efficacy of any of the above preparations is often increased by dusting equal parts of zinc oleate and arrow-root powders, or bismuth subnitrate, over the surface, first having, of course, applied a thin film of ointment. Corrosive sublimate, naphthol, or carbolic acid, suspended in water, in the proportion of five to ten grains of either of the former or five to ten drops of the latter to four ounces of rose-water, sponged over the surface, give occasionally great relief. Hyde recommends strips of cold raw meat, laid over the surface, for immediate beneficial effect.

Eczema of the Beard (*Eczema Barbæ*).—Eczema in attacking the hairy portion of the face assumes a similar condition to that observed on the scalp in the same disease. The alteration will not, however, be so great from neglect on the face, as it usually receives more care and attention than the scalp. The eruption usually appears in pustular form, generally at the orifice of the hair-follicles, each one being pierced by a hair, and involves all or a portion of the beard, extending in some cases to the eyebrows, eyelids, and outlets of the nostrils. The pustules dry up into yellowish, greenish, or brownish crusts, which mat together the hairs, cling to the skin, and, upon their removal, expose a red, infiltrated, scaly, or moist surface. Patients may complain of itching, but more commonly a burning sensation or pain is experienced, especially during the formation of the pustules. It may disappear spontaneously after the acute stage, but more frequently it is continued into the chronic form. In passing into the latter the inflammatory process extends deeper, and affects the hair-follicles as in sycosis. Abscesses may now form, the skin become more thickened and infiltrated, and the pressure and inflammatory action obliterate the follicles, leading to permanent loss of hair, and often the formation of scars. The sparse and poorly developed hairs, with all the now marked and apparent secondary changes, occasion very great disfigurement. Eczema may be limited to the beard, or it may spread to the adjoining smooth parts. It will thus be seen to differ from sycosis.

In sycosis the inflammatory process is situated deeply in the corium and subcutaneous connective tissue, while in eczema it is more superficial. Again, papules and tubercles may be present in sycosis, but are absent in eczema of the beard. The diagnosis between eczema and ringworm has already been considered.

The treatment, owing to the tedious nature of the affection, is often slow and unsatisfactory, but the ultimate result is usually good. Some are benefited by shaving the beard as often as every other day, or when required ; others derive no benefit from this procedure, and now and then cases are aggravated by it. I usually cut the hair short, remove, by one of the oils already named or a poultice, crusts and all exudation, and apply one of the soothing ointments. The disease may then be treated upon the general principles laid down for the management of acute eczema. Shaving may be tried in the event that the disease shows no signs of yielding. In obstinate cases, after removing the crusts, I puncture with the small needle-knife all the pustules and the infiltrated skin every day or two, allow the parts to bleed freely by dashing very warm water on them, mop the surface dry, and apply the benzoated zinc-ointment with or without sulphur, or a small quantity of one of the mercurials, or diachylon-ointment over the surface. This method of treatment I usually find all-sufficient, both in the acute and chronic varieties. Anderson, in some stubborn cases, has epilated the hairs with advantage.

Eczema of the Edges of the Eyelids (*Eczema Tarsi; Ophthalmia Tarsi*).—This is a common disorder in scrofulous subjects, more particularly in children, and may or may not be accompanied with conjunctivitis, or strumous ophthalmia. It involves the hair-follicles and glandular apparatus of the eyelids, and appears in the form of small pustules, similar to those observed in eczema of the other hairy parts of the face. The edges of the eyelids are red, swollen, excoriated, infiltrated, covered with a purulent exudation, exhibiting gray or yellowish crusts, the hairs and often the edges being glued together. Itching is occasionally present. A continuation or neglect of this morbid condition may cause lachrymation, which irritates the skin and gives rise to an eczematous eruption ; or the discharges are retained, ulcers may be developed, the glands and follicles obliterated, and, finally, a partial or complete loss of the eyelashes may supervene. The treatment demanded is usually both general and local. Cod-liver oil, quinine, iron and calcium should be given in alternation. The eyes should be bathed frequently with hot water, to which a small quantity of bicarbonate of sodium may be added. In case the lids are difficult to separate, notwithstanding the bathing, a small piece of fresh butter or a few drops of olive-oil can be smeared along the edges, facilitating their opening and preventing their adhesion. Permanent benefit can be obtained by removing the discharge, everting the lids, and painting the diseased edges with a weak solution of silver nitrate or potassa caustica.

In addition, the patient or attendant may employ on the lids, once or twice daily, a weak ointment of the yellow sulphuret of mercury, and, in the more chronic cases, the ointment of the red oxide of mercury, from one half to a grain to the ounce. In more severe cases, it may become necessary to extract the eyelashes. Eczema of the eyelids will often be found to depend upon some disease of the eye, and the attention of a skilled oculist is not only required but demanded to correct or remove the cause.

Eczema of the Nose (*Eczema Nasi*).—Eczema may attack the nose either alone or in connection with other parts of the face. The entire or part of the organ may be red, thickened, covered with exudation, and greatly increased in size. It usually affects the surface around the alæ and the entrance of the nostrils, which become red, swollen, the seat of pustules pierced with hairs, the mucous membrane likewise participating in the morbid process. The pustules sometimes run together, a thick, purulent secretion exuding, which forms into crusts, stopping up the entrance to the nostril. This condition impairs the nasal respiration, the mucous membrane beneath becomes congested, thickened, sometimes ulcerated. This, in rare cases, owing to the crust being picked off constantly, has led to perforation of the cartilaginous septum. Syphilis and lupus of the nose might be confounded with eczema of these parts, but the diagnosis is rendered comparatively easy in the former by the history and the presence of other concomitant symptoms of syphilis in the body, while in the latter the characteristic chronic nature of the affection, the absence of itching, and the peculiar local lesions of lupus, are sufficient on which to base an opinion. The success of the treatment largely depends upon the assistance of the patient. The surface must not be picked or torn in the effort to remove the crusts, but should be first softened with oil or a mild ointment, and then they can be taken away with ease and without injury to the parts. Zinc oleate, weak citrine or white-precipitate ointment, with a few drops of oil of chamomile or oil of cade, in case the parts require more stimulation, form important and useful applications. In the involvement of the mucous membrane, penciling the surface with solutions of zinc sulphate or silver nitrate is effective. Zinc oleate powder, as employed by McCall Anderson as a snuff, or nasal suppositories, as recommended by Neumann, composed of zinc oxide, two grains, with cocoa-butter, will be found valuable. The extracts of opium and belladonna or hyoscyamus, with a small quantity of lead acetate, can also be used with decided results.

Eczema of the Lips (*Eczema Labiorum*.—This occurs either on the lips alone or with the disease upon some other part of the face.

The eruption may appear on one or both lips, and may implicate the vermilion border and mucous membrane alone, or it may invade together or separately the integument covering the orbicularis oris muscle. In case it should be confined to the latter, it will partake of the nature of eczema previously described, either on the smooth or hairy part of the face. In the former the disease generally assumes the inflammatory or squamous form. The lips usually become red, hot, swollen, the exudation of serum not only filling up the loose cellular tissue of these parts, producing much deformity, but often oozing out on the surface, frequently gluing them together, especially during the night while asleep. The mucous membrane may, on the other hand, be simply red, and the seat of constant desquamation. The eruption is often complicated with secondary changes, the formation of fissures of varying depths at the angles of the mouth and the centre of the lips, those in the lower one being the most common. The movement of the lips, under such circumstances, in articulation or mastication, causes a very uncomfortable feeling, often absolute pain; the parts become more irritable in proportion to their activity, the fissures extend deeper, blood as well as serum being frequently poured out from them. The unpleasant sensation thus experienced, whether from the severe inflammation, fissured state, or the loss of epithelium, causes the patient to often move the lips backward and forward, or to apply the tongue on the parts to convey mucus or saliva to the surface to obtain some relief. These increased movements of the parts, and the natural effort to alleviate the suffering, only aggravate the eczema. Again, scraping the mucous membrane of the lips with the teeth (which, by the way, is one of the prominent exciting causes of the disorder), to get rid of the desquamation, or picking the latter from the surface, still further increases the disease, and prolongs the suffering of the patient.

Herpes labialis and syphilis of these parts may be mistaken for eczema. Herpes appears as groups of vesicles, and runs an acute course. Eczema involves all or part of the surface, and is usually tedious or chronic in its course. Syphilis of the lips seldom affects the entire surface, but generally tends to locate itself as elevated patches and fissures at the angles of the mouth.

The treatment of eczema of the lips is most difficult, owing to the fact that they are usually in constant motion. The various astringent lotions are useful. The ointments of zinc, lead, and bismuth oleate, lightly smeared over the surface, are often invaluable. The compound tincture of benzoin and the fluid extract of geranium are also exceedingly efficacious, penciled frequently over the surface and into the fissures. Before a cure can be effected, it will often be necessary, especially when fissures exist, to afford rest and support to the parts by the application of adhesive or medicated plasters, as described by me in 1879.* The beneficial influence of plaster, cut in strips and applied to the surface, is most strikingly evinced in eczema of the lips. The mucous surface in this disease is torn open with every movement of the lips, and all the lotions, ointments, and powders will not soothe the muscular irritation and heal the parts until they are protected and placed at rest. In order to accomplish this purpose, adhesive strips can be made to encircle the head and allowed to meet posteriorly at the nape of the neck. In this manner the movement of the lips is controlled, the raw surface protected, the irritation soothed, and the disease promptly and effectually arrested. In removing the strips, care should always be taken to detach both ends, and draw gradually to the centre, otherwise the mucous surface may again be torn open.

ECZEMA OF THE BREAST AND NIPPLE (*Eczema Mammarum*).—Eczema may attack one or both breasts, and run an acute course or become chronic. It occurs either as the erythematous or vesicular variety, with or without secondary changes, covering part or all the breasts, and often extending between or below them. The nipples of females are frequently the seat of the eruption, which takes on the vesicular or inflammatory form, with the development of crusts and fissures.

In some, the nipple is surrounded with a thickened patch, the surfaces of the parts are denuded of epidermis, and are red, swollen, fissured, hot, dry, or moist, and attended with intense itching or pain. In severe cases the nipple is retracted and covered with crusts or serum, and occasionally blood oozes from the fissured surface, and sometimes abscesses may form. Mothers are very often compelled, owing to the great suffering, to discontinue suckling for a time or to wean their infants entirely. Nursing women are more liable to be affected with this form of eczema, but it is also met with in those who are not nursing, occasionally being seen in single women. Epithelioma of the nipple and areola, described by Sir James Paget,† recently referred to by Thin ‡ and Munro,# is sometimes mistaken for eczema, but can be distinguished from the latter by its well-defined margin and the presence of deep infiltration in the papillary layer. The treatment of eczema of the breasts is similar in many respects to that of the other local varieties of the disease. It is of the utmost advantage to support and protect the parts by compression, in the form of bandages of muslin or medicated plasters. If the nipple is involved, it should be protected from irritation by a shield or breast-plate. In more severe cases the withdrawal for a time, or the entire removal of the child from the breast, may be necessary before relief can be obtained. Penciling the parts with silver nitrate, or, what is even better, a saturated solution of zinc chloride or the compound tincture of benzoin every two or three days, is often attended with good results. In the mean time, the surface may be anointed several times daily with the following:

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* See paper by the author, "Some Important Topical Remedies and their Use in the Treatment of Skin Diseases." "Transactions of the Medical Society of the State of Pennsylvania," vol. xii. 1879.

† St. Bartholomew's Reports, 1874.

‡ London Lancet, June, 1881. # Glasgow Medical Journal, November, 1881.

℞	Acidi tannici	℈ j.
	Extracti belladonnæ	gr. x.
	Extracti opii	gr. v.
	Ungt. aquæ rosæ	℥ ss. M.

Zinc oleate, camphor, or naphthol, can be added to the ointment, often with much benefit, or diachylon-ointment can be employed. Beef-marrow, lanolin, or sheep-suet, alone, or with some one of the astringent agents, as extracts of ergot, kino, or geranium, or boracic or salicylic acids, will be useful. After the application the nipple should always be carefully washed with either oil or water and soap before the child is put again to the breast; care, however, should be exercised to avoid cleansing the parts too much and aggravating the disease.

Eczema of the Umbilicus (*Eczema Umbilici*).—The navel, alone or with other parts of the integument, may be affected with eczema. It may take on the inflammatory or pustular form without much swelling, or it may project out like a small tumor, being red, infiltrated, moist, dry, or fissured, and occasionally covered with crusts. Its course is thus seen to be very similar to that of eczema of the nipple. Syphilis may here simulate eczema, but ulceration is usually present in the former, with a very offensive odor, and other manifestations of the disease. The treatment consists of mild compression, by a bandage or a medicated plaster, with cleanliness and a dusting-powder. Zinc oleate, bismuth subnitrate, or very fine zinc carbonate, will act efficiently. The ointments of zinc, lead, and bismuth, alone or combined with naphthol, thymol, or sulphur, are all serviceable.

Eczema of the Flexor Surfaces of the Joints (*Eczema Articulorum*).—The flexor surfaces of the joints and the adjacent parts are favorite localities for the development of eczematous eruptions. The axillæ, the elbow-joints, the groins, and the popliteal spaces, are the regions which are thus attacked by preference. The eruption is usually symmetrical; that is, for instance, when one axilla is invaded, the other is likewise affected. Again, when eczema is found at the bend of the elbow, the popliteal space also usually suffers; and in the same manner, when the wrists are affected the ankles are also usually involved. The skin upon the region affected becomes red, infiltrated, and scaly, or raw, and covered with serum and crusts, the epidermis being macerated. Owing to this condition the movements of the affected joint are often painful, consequently it is more or less flexed or bent at an angle. As the disease progresses the infiltration and crusting increase, and fissures of various depths form, from which exude serum or blood. The eruption now often spreads to the neighboring parts, particularly the exterior surfaces, and the limb is held in a fixed position, both flexion and extension being very painful. Eczema involving the regions just described will yield, in the acute and subacute forms, to some of the mild applications already alluded to, and in the chronic condition to preparations that are more stimulating, such as the various mercurial ointments, with or without tar. Care must be taken to protect the parts and to give them support and rest by moderate compression, in the form of a bandage.

ECZEMA INTERTRIGO.—Eczema intertrigo is different from erythema intertrigo, which is a simple hyperæmia; in the former the morbid process has passed beyond the latter condition, the surfaces being red, moist, macerated, with marked weeping. Eczema intertrigo is met with in those parts of the body, particularly in fat people, where two portions of the integument come in contact, as the flexor surfaces of the joints, the neck, between and beneath the breasts, in the folds of the skin of the abdomen, and the inner surfaces of the nates. It occurs more frequently during the summer months, and is often occasioned or aggravated by uncleanliness, friction of clothing, tight bands, walking, and driving. The treatment recommended for acute eczema will be sufficient to relieve the majority of cases. Thin films of prepared or medicated cotton or patent lint, laid between the apposing surfaces, alone or medicated with either a bland ointment or dusting-powder, will rapidly overcome the disease.

ECZEMA OF THE GENITAL ORGANS (*Eczema Genitalium*).—Eczema of the genital, as well as the perineal and anal, regions is far more frequent than is generally thought by the profession. Patients under my observation often state that their trouble was supposed to be simply chafing or the result of piles, or that shame of exposure has caused them to conceal the disease and apply various home remedies, or one of the many advertised nostrums, until, all means being exhausted, they have been driven by necessity to consult a physician. How many, however, who are even more sensitive, go on trying in their own way to obtain relief, and continue for an indefinite time to suffer from perhaps the most distressing of all the local varieties of eczema? Eczema may affect the genital organs alone, or may extend to or from some of the adjacent regions, or may appear simultaneously with the disease in other parts of the body. It occurs in both sexes and at all ages, but is more common during adult life and in declining years; it may be mild or severe, acute or subacute, but exists more commonly in the chronic form. The part affected may be the seat of the papular or vesicular variety, attended with redness, heat, and swelling, but more frequently the erythematous form will be present, with more or less secondary changes. The rich supply of blood-vessels, lymphatics, and nerves of the parts fully explains the marked changes and harassing and painful symptoms that follow the appearance of the various lesions. In the male, either or both the penis and scrotum may be affected. The erythematous form usually first involves the penis, in part or over the whole organ, extending sometimes up to the pubes. It generally attacks the transverse folds of the integument upon the dorsal part, appearing as elevated red lines, while on the under surface of the organ the skin may be red and moist. The organ may be more or less swollen, the surface occasionally rough and scaly, and the parts the seat of most distressing itching. The same variety, the erythematous, may extend from the penis, groins, anus, or perinæum to the scrotum, or the disease may appear on the latter and spread to all the adjacent parts. When the scrotum is affected, the skin is red, slightly scaly, and often relaxed, stretching or hanging down to a considerable extent, and, coming in contact with the limbs, develops irritation, frequently causing an extension of the disease. As the disease progresses the relaxation disappears, the infiltration or thickening increases to a great degree, and the sides of the scrotum are covered with moisture, the parts sometimes becoming absolutely raw or fissured, with occasionally the formation of crusts. The itching, pain, and distressing feeling under such circumstances are intense. The female organs suffer in a like manner. The labia are usually the seat of the disease, but the mons veneris and lower portion of the abdomen, the mucous membrane of the vagina, the adjacent portion of the thighs, and the perinæum and anus may also be involved. The labia, when affected, may be either slightly red and scaly or severely inflamed, thickened, dry, and hot, or covered with abundant secretion, the apposing surfaces glued together —the discomfort from the itching and pain often being unendurable. The nervous exhaustion due to the constant itching and want of sleep is often so intense as to interfere seriously with the patient's health. The causes that especially excite and aggravate eczema of these parts are the various disturbances of the general system, genital errors and disorders in particular, uncleanliness, and friction of the apposing surfaces, clothing, and the various appliances that are brought in contact with these parts.

Ring-worm, syphilis, herpes, acne, pediculosis, and paræsthesia, occurring upon the genital regions, may be mistaken for eczema. Ring-worm may be recognized by the crescentic border of the patches and the discovery of the parasite ; syphilis by the history of infection, the usual absence of pruritus, and the presence of other characteristic features of the disease. Herpes will be known by the preceding burning, smarting, and neuralgic pains, succeeded by the appearance of vesicles in groups, mainly around the mucous outlets, while in eczema of these regions vesicles rarely occur, and when they do, they usually appear upon the cutaneous surface. Acne may occasionally occur in these parts, often from the use of one of the bromides or iodides, but the peculiar features of acne, with the scattered lesions, limited to the glands and adjacent parts, will dispel any doubt as to the diagnosis. In pediculosis the pubic louse can always be detected by close observation. Paræsthesia, which may attack the genital organs, and which may give rise to eczema, can be recognized by the history of the case and the absence of lesions of the skin in the beginning of the disorder.

The treatment of eczema of the genital organs, while usually conducted upon the same plan pursued in other parts of the body, requires, in addition, some special consideration. Acute cases can often be better managed by soothing ointments, bland oils, and dusting powders, little or no water or soap being applied to the surface during the continuance of the eruption. The parts must be kept at rest, all excitement avoided, and the surface protected from the apposing parts and the clothing by thin films of simple or medicated cotton, lint, or old muslin. Light compression, by bandaging with old muslin, both for protection and to give rest and support to the congested and infiltrated integument, is of the greatest value, in both the acute and chronic forms. The patient must be instructed to desist from rubbing or scratching the surface. If the torment and suffering become very great, and the disease appears on the increase, the patient should be put in the recumbent position, and then, with perfect rest and proper medication, the affection can soon be relieved.

The following is useful in the acute form :

℞ Hydrarg. chlor. mit	gr. x.
Zinci carbonatis	ʒ j.
Pulveris marantæ	ʒ j.
Extracti belladonnæ	ʒ ss.
Extracti opii	gr. x.
Ungt. aquæ rosæ	℥ j. M.

The calomel can occasionally be omitted, and ten or fifteen grains of naphthol or a drachm of sulphur substituted in place of it. This ointment, or some one of those previously suggested for eczema, can be applied night and morning, and one of the ordinary dusting powders sprinkled or puffed over the surface. It is well to apply the dusting-powder frequently during the day, if occasion permits. Again, it is of advantage to use occasionally an emollient or alkaline bath to lessen the irritation. Astringent baths of either alum, tannin, or sage are also of service.

In chronic cases the parts should be cleared off by oil, or, if necessary, water and soap—castile, sulphur, tannin, and naphthol all being useful—every second or third night, and the ointment gently reapplied. The following has been found effective in such chronic cases :

℞ Ungt. hydrarg. nit	ʒ iij.	
Olei anthemidis	gtt. x.	
Naphthol	gr. v.	
Zinci carbonatis	ʒ j.	
Ungt. aquæ rosæ	℥ j.	M.

The subjoined lotion will be serviceable :

℞ Aquæ calcis	f ℥ iij.	
Extracti belladonnæ	ʒ j.	
Glycerinæ	f ℥ iij.	M.

Lotions of tannic or gallic acid, or the extract of kino, are also beneficial. Carbolic acid and the tarry preparations can likewise be used in the form of an ointment, and the diachylon ointment is also sometimes of value. The employment in obstinate cases of the alkaline or acid baths, or liquid medicated baths of potassium sulphide or sodium salicylate, will often give great relief.

Eczema of the Anus and Anal Region.—Eczema is often limited to the anus (*Eczema Ani*), or it may extend between the nates, in the cleft over the perinæum and the genital organs, or down the inner surface of the thighs. In the involvement of the anus alone there may be a slight muco-cutaneous congestion, with the most distressing itching, burning, or painful sensation up even into the mucous membrane of the rectum, or the parts may be red, swollen, and infiltrated. The surface may or may not pour forth a fluid exudation, which dries into crusts over the affected region. Fissures frequently form, which are exceedingly painful in walking, sitting, and especially during each movement of the bowels. The violent itching, burning, and painful sensations usually increase during and after defecation and toward night, especially after the patient has retired to bed. The parts are strained by the tenesmus, picked and torn in the effort to get relief, so much so that the muco-cutaneous surface is frequently œdematous, hypertrophied, and at times partial prolapsus ani may follow. The affections with which it is liable to be mistaken, especially paræsthesia, have been discussed under eczema of the genital regions, and the distinguishing points there considered. The treatment suggested for eczema of the nose, lips, and genital organs will be equally as effective for the eruption involving this region. Too much stress, however, can not be laid upon the value of the various medicated suppositories for relieving and curing eczema of the anus.

Eczema of the Legs (*Eczema Crurum*).—The legs of both sexes, more particularly in middle and advanced years, may be attacked by any one of the forms of eczema. The extent and severity of the eruption will vary according to the cause, the condition of the health, and the occurrence of such complications as varicose veins. It usually first shows itself on one or both legs as the erythematous or vesicular variety, generally being limited to these parts, and running through an acute course into the inflammatory form. Sometimes it appears as one or more patches of various sizes, generally upon the front of the limb or on the ankle, which often coalesces until the whole member is involved. The majority of cases, however, that present themselves for treatment have become chronic, the surface being red, thickened more or less, covered with yellowish or brownish crusts and scales of variable sizes, between which may be seen a clear purulent or bloody exudation. On removing the crusts and scales, the exposed surface will be found to be denuded of epidermis, reddened, moist, and weeping. In others, the legs may be the seat of one or more large or small red, infiltrated, dry, and scaly patches. The inflammatory process gives rise usually to the most intolerable itching, and the scratching, which the patient will often resort to, sometimes during sleep or in a state of semi-consciousness, always aggravates the eruption. Eczema of the legs is frequently the result of varicose veins, and is thus not only associated with them, but is further complicated by ulcers and other changes which they produce. The diagnosis is usually plain. Syphilitic ulcers of the legs may be distinguished from varicose ulcers by their sharp-cut edge, somewhat undermined, filled with abundant fetid pus, and being usually situated on the posterior part of the legs. On the other hand, varicose ulcers are everted and hard on the edge, the secretion is scant, often without odor, they are very vascular, and usually appear on the front or sides of the limbs. Further, it must be remembered that this disease sometimes accompanies elephantiasis arabum, but the eczematous eruption is secondary to the development of the latter affection.

The treatment will not differ from that suggested for the disease in other regions, except in the use of compression, which here becomes almost a necessity, in order to give support to the relaxed vessels and tissues. In beginning the treatment in both the acute and chronic forms, I first try to place the patient, if possible, in the recumbent position. It is often impossible to have patients submit to this procedure, but in some of the more obstinate cases it is absolutely essential to either relieve or cure the disease. The parts in the acute variety should be bathed once or twice daily with an alkaline or emollient bath, and the surface covered with

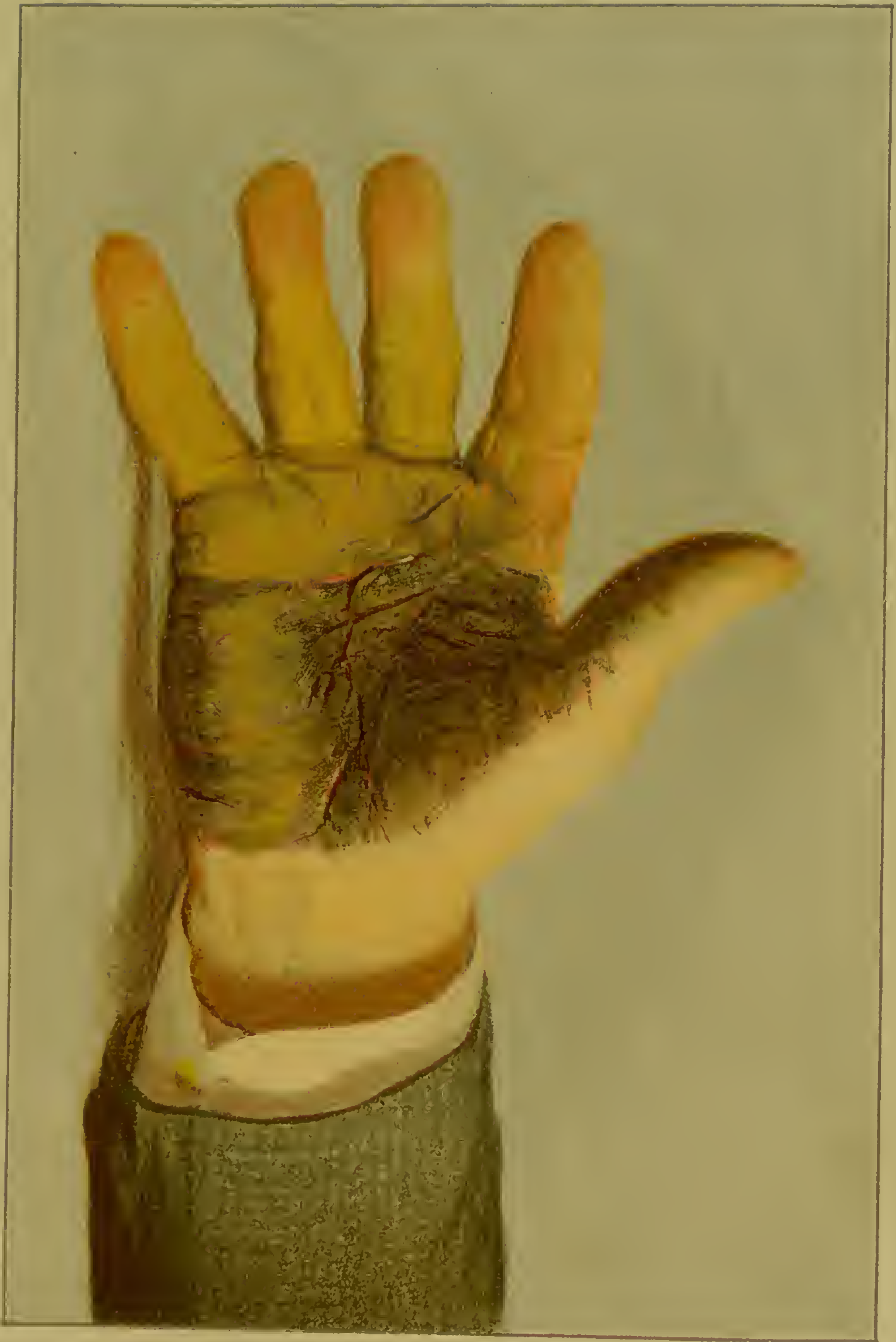
℞ Hydrarg. ammon.................... ℈j.
Acidi borici.......................... ℈j.
Creasoti............................ gtt. v.
Ungt. zinci oxidi.................... ℥j. M.

In place of the above ointment, four drachms each of lead and zinc carbonate, with four ounces of sweet-oil, may be employed. An emollient dusting-powder can next be dusted over the surface, and a soft muslin bandage applied to retain the dressing, protect the denuded parts, soothe the muscular irritation, tone up the dilated capillaries, remove poured-out products, and prevent the escape of serum into the tissues. Chronic eczema of these parts, on the other hand, demands a more stimulating treatment; the surface should be washed occasionally with sulphur, tar, or naphthol soap, and hot alkaline and astringent baths employed, every day or two, unless contra-indicated. The following ointment may also be employed with advantage:

℞	Ungt. hydrarg. nit.	ʒ ij.
	Sulphuris sublimati	℈ j.
	Zinci oxidi	ʒ j.
	Olei anthemidis	gtt. x.
	Adipis recentis	℥ j. M.

If ulcers exist, either bismuth subnitrate, bismuth subiodide, pulverized red cinchona bark, or some other astringent powder can be sprinkled over their surface. Carbolic or salicylic acid or balsam of Peru, camphor or the oil of cade, or any of the tarry preparations can be employed with benefit. Diachylon ointment is also useful, either alone or combined with other agents. Compression, by means of muslin, simple or compound medicinal plaster, or the rubber bandage, is a most valuable adjuvant in affording support, rest, and protection to the parts.

Eczema of the Hands and Feet (*Eczema Manuum et Pedum*).—The hands and feet may be the seat of all the varieties and changes found elsewhere in eczema. The hands, by reason of their exposure, especially in the various occupations, are more frequently affected than the feet. One or both hands may be the seat of the disease—more frequently the latter is the case—and occasionally, though rarely, the feet may be involved at the same time. Eczema may manifest itself on the hands with more or less inflammation, vesiculation, papulation, and pustulation, with a slight or large amount of swelling. It more frequently appears as the subacute or chronic variety, characterized by the continued development of groups of vesicles and papules on the back of the hands and sides of the fingers, or on the soles and palms, the vesicles remaining long on these parts, or the serum burrowing beneath the infiltrated patches. The surface may become the seat of superficial or deep fissures, especially about the knuckles and upon the palms. The thickness of the epidermis of the palms of the hands, of which Plate V is a good instance, as well as the soles of the feet, not only occasions these fissures of various lengths and depths to form, but also leads to more or less infiltration, hardening, and peeling of the skin as far forward as the ends of the fingers and toes. One or both palms or soles may be affected, and the entire or part of the sur-



From Nature—Eczema of the Hand.

face may be involved. The itching, pain, and suffering from this fissured skin, which may be inelastic or excessively dry, or exude serum or blood, are usually so great as to render all motion exceedingly painful, and in some cases impossible. Eczema occurring between the toes is a most troublesome affection, owing to their constant action, contact, and the friction between the apposing surfaces, the retention and decomposition of the perspiration, acting as an irritant, producing great itching, pain, and maceration of the epidermis. Eczema of the fingers and toes may, by its action on the matrices, affect the nails of one or all the members.

(*Eczema Unguium.*)—In this form of the disease, the skin around the base or at the sides of the nail is usually either red, thickened, or abraded, while the nail itself is somewhat depressed at the root, lacks polish and smoothness, and is rough and uneven. In some cases it becomes very brittle, in others very thin, and at times assumes a worm-eaten or club-shaped appearance. The nail may remain for a time in this condition, occasionally being broken and cast off, to be again replaced, but often regaining its natural aspect by degrees with the disappearance of the disease.

Eczema of the hands and feet may closely resemble syphilis, psoriasis, and scabies. In syphilis the lesions are smaller and more isolated than in eczema. They are also deeper, the edges ragged, with adherent dirty, gray scales, the surface beneath being of a red or coppery hue. Again, syphilis will not usually extend to the dorsal surface of the hands and feet, and is not attended with itching. Occasionally the two diseases exist side by side ; the history, the appearance of the eruption, and the presence of syphilitic lesions on other portions of the body will, by a little care, demonstrate the points of difference. Psoriasis of these parts is, as a rule, accompanied by patches in other regions, the fissures are generally dry, and the scales large, white, and abundant. In eczema, on the other hand, the cracks exhibit more or less moisture, and the scales are scanty and of a yellowish hue. Finally, scabies, which involves especially the hands, may be detected by the furrows, the itch-mite, its contagious nature, or by its rapid yielding to antiparasitic remedies. The treatment can be briefly summed up : Rest and the application of an emollient or stimulating ointment. The frequent use of water, or water and soap, should be interdicted, as cases are often thus aggravated. The parts may occasionally with advantage be cleansed and stimulated with sapo viridis, or one of the medicated soaps, but the interval between such applications should usually be long. It is better, in the majority of cases, to use a bland oil for softening the surface and removing all effete products from the parts. Dusting-powders, or one of the oils, or a mild stimulating ointment, may then be used if the individual must continue in his usual occupation. I prescribe very often, in the acute form, rose-water ointment, with half a drachm of sulphur, and one or two drachms each of lead and zinc carbonate. Cod-liver oil, alone or combined with a few drachms of oil of cade, is beneficial in both the sub-acute and chronic forms. In the chronic variety the following will be of service :

℞ Ungt. hydrarg. nitratis	℥ ss.	
Olei cadini	f ʒ j.	
Adipis recentis	℥ ss.	M.

Another good application is :

℞ Ungt. hydrarg. oleatis (10 to 20 per cent)	℥ ss.
Naphthol	ʒ ss.
Adipis recentis	℥ ss.

In the involvement of the fingers and toes, the ointment of zinc oleate—one or two drachms of the oleate to the ounce of lard—is useful. The remedy can be applied on muslin or lint, and placed between the members and confined by a bandage.

If the nails are affected, the ointment of tin oleate will assist in relieving the irritation and in giving a polish to the nails. Compression is equally as efficacious in eczema, particularly the chronic form, of these parts, as in the legs and other portions of the body. The entire or part of the hands or feet or each finger and toe can be covered with the medicament, and then bandaged with muslin, or a medicated plaster of zinc, lead, etc., can be used. Tightly-fitting porous stockings applied over the dressing, or a stocking woven with some gum material may also be employed.

The hands, in a like manner, can be covered with cotton gloves, or, what is much better, a woven glove, with cotton and gum in the fabric.

Prognosis.—Eczema is a curable disease, if properly managed. In very many instances, however, either the hygienic, dietetic, constitutional, or local treatment ordered will be so neglected, changed, or modified by the patient as to prolong the eruption, and often interfere materially with its cure. The prognosis, therefore, largely depends upon the patient following in every respect the directions of his medical adviser. An opinion as to the probable duration of the disease depends upon the exciting cause, the variety and stage of the eruption, whether acute or chronic, the locality invaded, and the length of time the affection has been upon the surface. Thus, when eczema is dependent upon old cases of nervous debility, dyspepsia, chronic ovarian or uterine disorders, the cutaneous inflammation may remain obstinate or rebellious until one or the other of these conditions that may be present is removed. Every case must be thoroughly investigated, so as to ascertain, if possible, the exciting cause, and the prognosis based upon the removal of the condition that produced the disease. It is also essential, before expressing an opinion, to take into consideration whether the disease is acute or chronic, as well as its variety and stage; for instance, the result of treatment is much more rapid and certain in acute than in chronic eczema. Again, acute vesicular eczema has a shorter and more definite course than papular eczema, which tends to become chronic. Finally, the duration of the eruption, whether it is the first onset of the disease or a relapse, and the region invaded, are points of the utmost importance in giving an opinion. Acute eruptions of short duration, properly managed, may quickly disappear, or return once or twice and then vanish, but relapses usually denote a long and tedious course of the disease. The prognosis also depends upon the locality invaded; eczema of the scalp, beard, and other hairy parts, for example, are invariably both obstinate and chronic.

Eczema of the hands and feet is generally unyielding on account of the constant exposure of the hands, and the necessary activity of the feet in the patient's daily vocation. Other examples of rebellious and persistent eczema are observed when the disease attacks the scrotum and adjoining parts, and the limbs of old persons. In the involvement of the former portion of the economy, the apposition of surrounding parts, their anatomical formation, and in the latter the presence of varicose veins or ulcers, tend to complicate the disease and render it unyielding, for a long time, even under the most careful treatment.

DERMATITIS.

Dermatitis is a simple inflammation of the skin occasioned by violence, the external application of irritating materials, the extremes of heat and cold, the reflex disturbance from various diseases, or produced by the ingestion of certain medicinal substances. The eruption will vary according to the nature and intensity of its cause, the susceptibility of the skin, the state of the individual's health, and many other circumstances. It may begin as a mild or severe erythema, and continue as such, or it may change to a papular, vesicular, pustular, bullous, or gangrenous condition. It may be limited to a small area or diffused over almost the entire surface. The attendant symptoms of inflammation, redness, swelling, heat and itching, or pain, exist in varying degree. There are five varieties of the disease—dermatitis traumatica, dermatitis venenata, dermatitis calorica, dermatitis gangrenosa, and dermatitis medicamentosa.

DERMATITIS TRAUMATICA.—This variety includes all active and passive inflammatory conditions of the integument due to violence. It embraces punctures, incisions, excisions, contusions, lacerations, and all injuries which may result to the skin. Among the many causes which may give rise to traumatic dermatitis are pressure and friction from clothing, shoes, bands, etc.; excoriations from scratching in the course of many cutaneous diseases, especially the animal parasitic affections, pediculosis, and scabies, and the bites and stings of the lower animals. Finally, certain superficial cutaneous affections, particularly erythema, may terminate in simple inflammation.

Dermatitis Venenata.—This form of dermatitis comprises all inflammations which are the result of the contact of various poisonous and irritating substances with the integument. The inflammation may be of a mild or severe type, according to the susceptibility of the individual and the character of the substance coming in contact with it. Various chemical and medicinal substances—such as acids, alkalies, and other caustics; cantharides, ether, chloroform, savin, mustard, mezereon, arnica, and turpentine; the tarry preparations, used locally—may cause dermatitis. Tartar emetic also occasions a vesicular and pustular eruption, particularly when used in the form of an ointment. Croton-oil applied to the skin produces similar lesions attended with œdema, swelling, and often pain, with itching—the severity of the lesions and symptoms depending upon the quantity of oil and the extent of friction employed. Mercurials, especially the ointments, may likewise give rise to dermatitis, particularly if used carelessly, or upon a sensitive or susceptible skin. The many dyes used for coloring toys, hat and cap bands, under-garments, more especially flannel shirts and drawers, and cheap colored hose, often produce violent inflammation. Normal and abnormal secretions, by their retention or contact with the skin, as an excessive secretion of sweat, the excessive discharges from the bowels, the dripping of urine, the pus from gonorrhœa, wounds, or other diseases, may also produce similar inflammatory conditions.

The vegetable kingdom furnishes many substances which, when applied to the skin, occasion irritation and more or less severe inflammation. Among the plants that possess these properties are the nettle, the smart-weed, cowhage, and, by far the most common, the rhus family—the rhus venenata, the rhus toxicodendron, ordinarily referred to as poisonous sumach or dogwood, or poison oak or ivy. The poisonous principle which exists in several members of this family has been isolated by Prof. Maisch, of Philadelphia, and shown to be a volatile acid known as toxicodendric acid. The susceptibility to these plants varies in different individuals. Some can handle them with impunity; in others, the moment they come in contact with the plants, or even approach them, the most violent and severe inflammation of the skin appears in a few hours, and, in rare cases, sometimes a day after. The disease usually begins in the hands, the lateral parts of the digits being first affected, and the dorsal and palmar surfaces next. From the hands it is most liable to pass to the parts with which they come in contact, as the face and genitalia. It may also spread to other or all parts of the body. The eruption generally appears in an erythematous form, accompanied by vesicles, pustules, and even abscesses, and attended with more or less œdema, swelling, heat, and itching. The serous infiltration and swelling may at times be so great as to occasion great disfigurement, especially of the hands, arms, and genitalia. The lesions may be discrete or confluent. The vesicles are usually small, being situated upon an inflamed and œdematous base, and often develop into pustules, which may rupture, the discharge drying into yellowish crusts. The affection may run an acute course in from one to six weeks. The period of recovery from it will, of course, vary according to the condition of the patient and the promptness with which treatment is instituted.

Dermatitis Calorica.—This variety of dermatitis is produced by extremes of heat and cold ; and, inasmuch as both inflammatory conditions which they occasion are so common and require most careful treatment, they will, for practical purposes, be described under the titles of Combustio, or burn, and Congelatio, or frost-bite.

Dermatitis Gangrænosa.—An idiopathic and a symptomatic form of dermatitis, ending in gangrene, has been reported. It may appear either in the form of diffused or circumscribed patches. The idiopathic variety, which inclines to be symmetrical, may begin in some cases as large or small, circular, reddish or purplish hyperæsthetic or anæsthetic spots. In other cases it may appear in the early stages as hæmorrhagic macules, or as spots presenting a white, parchment, or alabaster appearance.

Fagge, Brodie, Stockwell, Charcot, Rooke, Petri, Leloir, Dejerine, and others, have reported many interesting cases of this form of dermatitis. It has been known to follow various cerebral, spinal, and nervous diseases, and also diabetes and cachexia. Instances have been recorded in which this variety of dermatitis has been produced by certain substances, chiefly caustics, for the purpose of deception.

Dermatitis Medicamentosa.—Many cutaneous eruptions of an inflammatory character are the result of the internal administration or the external application of drugs. Their occurrence is, however, not common, and is usually due to individual idiosyncracy. The accompanying list of drugs* comprises most of those that have been observed to give rise to various disorders of the skin :

Acidum Benzoicum, taken internally or inhaled, may in exceptional cases produce an erythematous or small papular eruption.

Acidum Boracicum.—An erythematous eruption, involving the face, trunk, and extremities, has been recorded from washing out the pleura with a solution of boric acid. Papules and blebs have likewise resulted from an injection of boric acid.

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* For a more detailed account, see Drug Eruptions, by Prince A. Morrow, A.M., M.D. New York: William Wood & Co., 1887.

Acidum Carbolicum—Creasotum.—Strong solutions of these remedies applied to the surface incite more or less violent dermatitis, characterized by erythema, œdema, itching, and pain; used undiluted, they destroy the portions of the integument to which they are applied.

Acidum Nitricum, when applied to the integument diluted, will produce a yellowish discoloration. Stronger applications give rise to a bullous eruption resembling pemphigus, and are occasionally employed for this purpose by hysterical women.

Acidum Pyrogallicum.—The local use of pyrogallic acid may give rise to dermatitis of varying severity, and may produce extensive ulceration and sloughing.

Acidum Salicylicum—Sodii Salicylas.—These agents have been known at times to produce various cutaneous lesions. Thus, Heinlein reports a diffuse erythema on the left side of the face, chest, and lower extremities, with œdema of the eyelids, lips, and legs, together with an intolerable itching and tingling of the skin, accompanied with fever, from large doses of salicylate of sodium. On decreasing the medicine, the eruption disappeared, but, on again renewing large doses, an urticarial eruption appeared upon the greater part of the body. The eruption disappeared on the following day, and small doses of the drug did not occasion any relapse. Vesicles and pustules on the hands and feet, with much sweating, have also been recorded as due to the use of this drug. Ecchymotic patches have likewise been noticed on the back from the same cause.

Acidum Tannicum.—An erythematous eruption has been reported to follow from the injection, inhalation, and ingestion of tannic acid, in a case recorded by Dr. Williamson.

Aconitum.—A decided diaphoresis has sometimes followed the internal use of aconite, together with vesiculation and more or less itching. Its external application has also been attended with redness and the development of vesicles, pustules, and blebs.

Amygdala Amara.—The ingestion of bitter almonds has been reported to produce an eruption similar to urticaria.

Anacardium, or the cashew-nut, when applied to the skin, is followed by violent dermatitis of an erysipelatous character.

Antimonium.—In some cases the internal administration of antimony has been followed by the development of wheals, papules, and pustules.

Antipyrine.—This drug is frequently productive of cutaneous disturbances. The eruption resulting from its use consists of numerous and widely disseminated erythematous spots, or small, hard, dark-red or purplish papules.

Arnica.—Notwithstanding the esteem in which arnica is held as a domestic panacea, its external use is frequently productive of violent erythematous and pustular eruptions.

Arsenicum.—Erythematous, vesicular, bullous, papular, pustular, or ulcerative lesions may follow the ingestion or absorption through the skin of arsenic. The eruption may resemble syphilis, measles, erysipelas, or erythema multiforme. Occasionally it may be purpuric or urticarial in appearance. It generally occurs on the face, neck, and hands, and may disappear in one to two weeks after the remedy is discontinued.

Balsamum Peruvianum.—An erythematous, urticarial, or eczematous eruption may follow the application of this drug.

Belladonna—Atrophia.—An erythematous or scarlatinoid rash may develop after either the internal or external use of belladonna or its alkaloid. It is one of the most common medicinal rashes, and very frequently appears within a very short time, often a few moments or an hour after the employment of the drug. The efflorescence is accompanied with headache and dryness of the throat, but neither fever nor desquamation is observed. It is of more frequent occurrence among children than adults, probably owing to the drug being more largely administered to the former class. The eruption is mostly limited to the face, neck, and chest, but it may, in rare cases, involve the entire surface.

Benzole.—Lewin reports erythema from the application of this agent.

Bromine—Bromides.—The eruption produced by the bromides, especially the potassium and ammonium bromides,* usually consists of acne or acneform furuncles, first developing on the face, neck, chest, and back. Vesicles and pustules may appear at the same time, with occasionally an erythematous efflorescence, or brownish discoloration, the eruption assuming now the appearance of eczema, and, again, resembling the papular syphiloderm. Wheals and ulcers have also been known to follow the use of these preparations. The eruption may appear within twenty-four to forty-eight hours after the administration of the drug, but usually it only develops after the system has been saturated with it. The use of small doses of arsenic with the bromide frequently prevents the development of the eruption.

Calx Sulphurata.—The sulphide of calcium given internally may sometimes produce vesicles, pustules, and furuncles.

Cannabis Indica.—A papulo-vesicular eruption, covering almost the entire body, has been reported by Hyde, after a patient had taken one grain of the drug. The pruritus was marked, but all the symptoms disappeared in a few days.

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* The ammonium bromide, according to Ringer, is most active in producing bromide eruption.

Cantharis.—The vesicating qualities of this drug render it invaluable in many affections where counter-irritation or derivation is requisite, but it occasionally produces obstinate and extensive ulceration.

Capsicum.—The external use of capsicum is sometimes followed by erythema and a mild form of dermatitis.

Chloral.—An erythematous or scarlatinaform eruption may result from the use of chloral hydrate. It appears usually on the face, neck, chest, and extremities. It is especially liable to develop when the drug is administered with stimulants. It may occasion fever, with tenderness of the skin, glandular enlargement, or wheals; papules, vesicles, pustules, and even petechia and ulceration may appear, and in toxic doses be followed by symptoms of purpura hæmorrhagica and death.

Chrysarobin, chrysophanic acid, or Goa powder is extremely irritant to the normal integument, producing marked œdema, accompanied by the formation of nodules, pustules, and large vesicles.

Cinchona—Quiniæ Sulphas.—Quinine may give rise to an erythematous eruption, resembling, at one time, scarlet fever rash, and, again, measles or erysipelas. It may occur from small doses, and may or may not be preceded or accompanied by the well-known symptoms of cinchonism. The eruption first appears upon the face and neck, and spreads until all the body is invaded. The local symptoms of burning and itching are very intense. The eruption terminates in desquamation, which may continue for some time. Papular, bullous, and purpuric forms have also been recorded.

Condurango.—According to Guntz, furuncular and acneform lesions have developed after the administration of condurango for the treatment of syphilis.

Conium.—An erythematous or papular eruption with diaphoresis may result from the administration of this drug.

Copaïba.—A bright-red papular or maculo-papular rash, with intense itching, may appear from the ingestion of copaiba. It resembles urticaria and erythema multiforme, and occurs by preference on the extremities, but may involve all the body. The eruption may appear immediately after the medicine has been taken, or, in rare cases, a long time after its employment. In one case under my observation, the eruption, covering the entire body of a college student, was mistaken for small-pox. Within a few days in this, as in all cases, the eruption subsided with the discontinuance of the drug, and my diagnosis was verified.

Cubebs.—A bright-red discoloration of the skin, with millet-seed papules, coalescing in spots, involving the face, arms, trunk, and limbs to a slight extent, has been recorded from the ingestion of cubebs. The eruption occurs mostly in young subjects after the use of large quantities of the drug. It disappears in a few days after the cubebs have been discontinued, but may be followed by a furfuraceous desquamation.

Digitalis.—The internal and external use of digitalis have been known to produce an erythematous, papular, and even an erysipelatous eruption. Morrow reports an erythematous efflorescence followed by urticaria from the administration of infusion of digitalis with acetate of potassium.

Dulcamara.—In susceptible subjects, large doses of dulcamara produce a diffused but temporary scarlatinaform efflorescence.

Ergot.—A vesicular, pustular, and furuncular eruption, with petechiæ, has been known to result from the prolonged ingestion of ergot.

Ferrum.—The internal use of iron will at times develop an acneform eruption.

Hydrargyrum—Mercury.—The administration of small doses of mercury may occasionally produce a partial or general deep-red eruption. The region attacked is ordinarily the face, but it may spread over part or all of the surface. The skin is smooth, shining, dry, itchy, and has very much the appearance of erysipelas.

Hyoscyamus.—Hyoscyamus may, like the other members of the Solanaceæ, produce a vivid scarlatinaform eruption, which disappears as soon as the drug is eliminated from the system.

Iodine, Iodides, and Iodoform.—Erythematous, papular, vesicular, bullous, vesico-pustular, pustular, and purpuric lesions have been caused by the administration of these medicines. The erythematous form, which is not rare, develops generally upon the forearms, face, and neck. The papular and vesicular forms, which are, however, not so common, are usually the result of long-continued use of these drugs. They occur on the chest and limbs, as well as on the scalp and scrotum, and are attended with severe itching. An eczematous eruption, with high inflammatory, constitutional, and local symptoms, has also been recorded from the ingestion of small doses of the iodides. The pustular form is the one most commonly met with ; it resembles, both in appearance and location, the eruption produced by potassium bromide. It is commonly acneform in appearance, and appears upon the face, shoulders, back, chest, and arms. On examination, iodine has been detected in the pus. The bullous form has been observed principally upon the head, neck, and upper extremities, although instances are mentioned of its occurring on the lower extremities, the trunk, but, rarely, in the mouth. The eruption may begin as small vesicles or papules, which remain so, or slowly become, especially if the drug be persisted in, bullous, the fluid continuing serous, or becoming purulent or sanguinolent. Purpura may also follow the use of iodine or the iodides. It generally occurs on the legs. It may assume the hæmorrhagic form of the disease, and terminate fatally. All lesions usually disappear, rapidly, within a few days after the iodine or iodides have been discontinued.

Ipecacuanha.—This drug, when placed in contact with the skin, is productive of erythema, papules, and pustules. Its ingestion is occasionally followed by outbreaks of urticaria.

Olea—Fats.—Oils and fats, especially cod-liver oil, occasionally after ingestion produce erythematous or acneform lesions.

Oleum Ricini.—When this oil is accidentally or designedly substituted for olive-oil in preparations for internal or external use, erythema and pruritus may result.

Oleum Tiglii.—The pustulating properties of croton-oil are well known, but occasionally the pustules become the initial point of an obstinate ulcerative process.

Opium—Morphia.—An erythematous eruption, resembling that of scarlet fever, may occur after the internal use of opium and its alkaloids. In other cases the employment of these preparations may simply give rise to an intolerable itching, without any efflorescence, or there may develop an urticarial efflorescence, with heat and itching, or only a profuse sweating and sudamina may appear. The eruption, if mild, may disappear in the course of a few hours, or, if severe, it may continue longer and be succeeded by desquamation.

Phosphorus—Phosphoric Acid.—Phosphorus may occasionally develop purpura with fatal result. A bullous eruption, resembling pemphigus, has been observed to follow the use of phosphoric acid.

Pix Liquida—Turpentine.—Erythematous, vesicular, and papular eruptions, mostly occurring on the face and trunk, accompanied with intense itching, occasionally follow the internal use of tar and turpentine, and their various products.

Plumbum.—The salts of lead used internally may produce an erythematous eruption, or petechiæ. Their external application may also result in brownish or blackish discolorations of the skin.

Podophyllum Peltatum.—More or less cutaneous irritation of the scrotum has been observed by Winterburn in those who work with the resinoid podophyllin.

Potassii Bichromas.—Workmen engaged in manufacturing this salt, or using dyes in which it is an ingredient, are frequently attacked by papular and pustular eruptions of a malignant character, succeeded by ulceration and sloughing. Perforation of the septum nasi not infrequently occurs. The wearing of garments dyed with this substance is a not uncommon cause of ulcerative dermatitis.

Potassii Chloras.—An erythematous and papular eruption has been reported to follow the internal use of chlorate of potassium.

Santoninum.—Urticaria, with swelling of the face and œdema of the eyelids, has been recorded from giving a child three grains of santonin.

Sodii Benzoas.—An erythematous eruption, attended with itching and desquamation, has been reported by Rohe after the ingestion of sodium benzoate.

Sodii Boras.—An eruption similar to psoriasis, occurring on the arms, trunk, and legs, has been reported by Gowers from the employment of borax. The use of arsenic with the above salt caused the eruption to fade in two cases of the three reported.

Stramonium.—An erythematous eruption, simulating the efflorescence of scarlet fever, has frequently been observed during the administration of datura stramonium.

Strychnia.—A scarlatinaform eruption has been noticed even after the use of one twenty-fourth of a grain of strychnia.

Sulphur.—Sulphur, when taken internally or applied externally, may be the inciting cause of erythema, papules, and pustules.

Tanacetum.—Hyde cites Porter's case in which a variolaform eruption developed after the ingestion of a drachm and a half of oil of tansy.

Thapsia.—Thapsia applied externally produces intense dermatitis, followed by pustulation.

Veratria.—An erythematous, pustular, and at times a petechial rash may follow the application of veratria to the skin.

Veratrum Viride.—An erythematous and even a pustular eruption has been known to follow the internal use of veratrum viride.

The diagnosis in almost all the varieties of dermatitis largely depends upon the history of the case. Care should always be exercised to detect the distinction, if possible, between genuine eruptions and those which are produced with a view to deception. If the eruptions are simulated, they will be found to occur usually upon regions of the body which are easily reached by the hands, and more particularly in hysterical women.

The gangrenous variety of dermatitis should not be mistaken for senile gangrene of the lower extremities, which, unlike the former, involves both the skin and the deeper parts.

The diagnosis of these many medicinal eruptions is often very difficult, and, if fraud be suspected, a most careful examination of the history and mode of living of the patient should be made. A medicinal rash may be suspected when the eruption appears suddenly, and particularly when a variety of lesions occur. Again, the wide diffusion of the eruption, its presence upon exposed and protected parts, the attendance of itching and absence usually of fever, together with the knowledge that the patient is taking some substance, upon the decrease or removal of which the rash suddenly disappears, furnish sufficient evidence for the diagnosis.

Treatment.—Internal medication in dermatitis is only necessary in a few cases. The free use of alkalies, in the form of the natural waters, is often valuable in some, while in others the tincture of the chloride of iron acts promptly in giving relief. Antipyretics and tonics may be especially serviceable in rhus-poisoning and other similar conditions arising from contact with vegetable substances. Iodide eruptions may often be prevented or relieved by drinking freely of water. The local treatment in all varieties of dermatitis is the same as that already suggested for acute eczema. Soothing and astringent lotions in the beginning of the eruption, and, later, bland and slightly stimulating ointments, with or without the ordinary dusting-powders, are indicated. Lotions of lead-water and laudanum, tincture of witch-hazel and water, bicarbonate of sodium and borax, alone or combined in the form of solution, and black-wash, are all most useful applications. The same drugs may also be employed in the form of ointments. Boric acid or subnitrate of bismuth, one drachm of either to the ounce of simple ointment, will be serviceable in many cases. The addition of a small quantity of naphthol or sulphur, or both, to the ointment is often of advantage. The use of weak mercurial ointments will frequently be efficacious, especially in the later stage of the eruption.

Rhus-Poisoning.—This variety of dermatitis often requires the most active local treatment to afford relief to the suffering patient. If the lotions already recommended fail to alleviate the suffering and remove the eruption, recourse may then be had to one to six drachms of hyposulphite of soda to the quart of water, to be used constantly on the inflamed parts. Decoctions of white or black oak-bark, or black alder, or geranium maculatum, will prove of value. From one half to one drachm of the fluid extract of Grindelia robusta, with four to six ounces of water, has been highly extolled. The earth treatment, or the use of fresh clay, will act most successfully in many cases. According to Hyde, an ointment of great value can be made "by incorporating a decoction of the inner bark of the American spice-bush (Benzoin odoriferum) with cold cream."

Medicinal Eruptions may often be prevented or relieved by simple baths—hot air or steam—the Turkish being preferable. Baths eliminate the drug, and so prevent or lessen its irritating action on the skin. The various soothing and slightly stimulating ointments are also of advantage. The lesions resulting from the action of arsenic are effectively relieved by a weak ointment of iron oleate, from ten to sixty grains of the salt to an ounce of lard. Bromine and bromide eruptions may be benefited by the free application of a solution of salicylic acid, one grain to the ounce of water, as recommended by Prowse.

COMBUSTIO.

SYNONYMS.—Dermatitis combustionis—Burns—Scalds.

Burns and scalds are inflammations of the skin, and occasionally of the deeper structures; the former being due to the action of dry, and the latter to the action of moist, heat.

Symptoms.—They may be divided, according to their degree, into three varieties—dermatitis ambustionis erythematosa, dermatitis ambustionis bullosa, and dermatitis ambustionis escharotica.

DERMATITIS AMBUSTIONIS ERYTHEMATOSA.—The erythematous variety is the result of exposure to the rays of the summer sun, or contact with steam, flame, ignited gases, or heated solids or liquids. The surface is reddened, slightly swollen, and painful, and may be the seat of a few small vesicles. All these symptoms disappear in a few days, to be succeeded by more or less desquamation of the epidermis.

DERMATITIS AMBUSTIONIS BULLOSA.—The bullous variety of burns and scalds is due to a more prolonged contact with one of the above forms of heat. The pain is intense, the inflammation marked, and great serous exudation occurs, elevating the epidermis, and forming blisters and bullæ of all sizes and shapes. As the result of an increased escape of serum, or from external violence, a few or many of the lesions may rupture, and the epidermis lies in rolls or hangs in shreds, with the inflamed corium visible beneath. The neighboring glands become swollen and painful.

Under the most favorable circumstances the fluid may be absorbed, the blebs drying into crusts which drop off, exposing a thin epidermis beneath. In other cases repair takes place by granulation, cicatrices seldom resulting unless the corium is destroyed.

DERMATITIS AMBUSTIONIS ESCHAROTICA.—The escharotic form of burns and scalds is the result of exposure to an intense or continuous degree of heat occasioning death of the skin, with possibly the deeper parts. The skin in some cases presents a brown or black, or a smooth, white, gray, or yellowish appearance. It may also be hard, dry, or moist, and without the least sensation. In more severe cases the integument and the subcutaneous muscular fibrous tissues, and even the bones, are completely carbonized. The skin surrounding the eschar is reddened, swollen, and painful. The depth of the destruction of the tissue can not even be surmised from the appearance of the surface. Pain which may be present at the time of the burn is generally slight, or may disappear, to be soon succeeded by severe or intolerable suffering.

Reactive inflammation follows from about the third to the fifth day, after which the line of demarcation forms, separating the mortified mass from the living part. The eschar is generally cast off in from ten days to two weeks, to be followed by the formation of granulations.

Healing occurs by the formation of fibrous connective tissue, which is destitute of nerves and glands, and which by its contraction frequently produces hideous cicatrices. This form of burn occurs usually from the direct effect of flame, molten metals, electricity, caustic lime, boiling liquids, steam, or ignited gases.

Constitutional Symptoms.—The erythematous variety may be attended with mild fever. The second, or bullous, variety is usually accompanied by severe fever and great systemic disturbance. It is exceedingly dangerous in the debilitated, in children, and in old persons, especially if a large portion of the skin is involved. In fact, the involvement of one third of the cutaneous surface by burns or scalds is invariably fatal, and for one fourth of the skin to be affected is almost equally dangerous. A patient having such an extensive burn suffers very much at the time of the accident, but, after the surface has been dressed, may appear comparatively comfortable. The urine, however, is often retained, and, if an attempt is made to draw it off, not any or but little can be obtained. In severe cases in the course of from six to thirty-six hours a comatose condition appears, the temperature declines several degrees, the pulse becomes small, the respiration rapid, the extremities cold, vomiting may take place, and the coma end in death. Sometimes restlessness and delirium may occur, with clonic spasm and opisthotonos. Hæmorrhage has been known to follow at times from the various mucous surfaces. Death may occur in the course of forty-eight hours from shock, or at a later period from erysipelas, pyæmia, tetanus, pneumonia, or other complications.

Treatment.—In the most severe form of burns the constitutional symptoms demand immediate attention; the depression, shock, and pain should be relieved by a full dose of opium (a hypodermic of morphia being preferable), a hot, stimulating drink of ginger-tea, or whisky or brandy, is also valuable. After the patient has been made locally comfortable, the opiate and stimulants should be continued, together with full doses of quinine and plenty of nutritious broth.

The preparations of ammonia, especially the aromatic spirit and the carbonate, in full doses, frequently repeated, will be serviceable, especially if there is profound depression or shock. Locally, the pain of the erythematous variety can be immediately relieved by applications of cold water, lead-water, and laudanum, a solution of cocaine, or a three-per-cent solution of creasote or carbolic-acid, or a saturated solution of bicarbonate of sodium. The carbonates of lead and zinc, and the subnitrate of bismuth, are also beneficial, and may be used either as a dusting-powder or ointment.

In the bullous variety the healing process may be hastened by pricking the blebs, permitting their contents to run out, but retaining their covering as a protection to the corium beneath. Any of the lotions, ointments, or powders above suggested may then be applied to the affected surface. Plain zinc, lead, or borax ointment, with arrow-root, may answer in some cases, while in others, olive-oil, alone or combined with a small quantity of mercury or carbolic acid, may be more acceptable. Equal parts of linseed-oil and lime-water form an old and valuable application. In the escharotic variety of burns the clothing should at once be removed, and the patient placed upon some soft fabric. All detached or charred fragments of the epidermis should be snipped off, and any of the remedies previously mentioned gently applied over the burned area. If the surface involved is extensive, oil, alone or combined with a powder dusted over the denuded surface, may be used in order to create a protective coating. Carbolized or salicylated cotton, lint, or gauze, or borax lint, will also be useful. The dressing should not be changed too frequently, in order to avoid increasing the local irritation. The condition of the surface should be carefully watched, the dressing renewed once in twenty-four to forty-eight hours, or even oftener, should the discharges become copious and troublesome. The continuous water-bath, as employed by Hebra, may be resorted to occasionally with benefit. Ulcerated surfaces or exuberant granulations may be overcome by stimulating ointments, the application of solid nitrate of silver or sulphate of copper, or by skin-grafting. An excellent and often effective remedy is the powdered red cinchona bark. Old, obstinate ulcers may be induced to take on healthy action by the application of the infusion of jequirity. Scars, which frequently remain, may be removed by massage, galvanism, the application of collodion, or by surgical procedures.

CONGELATIO.

SYNONYMS.—Dermatitis congelationis—Frost-bite.

A frost-bite is a dermatitis, or an inflammation of the skin, with occasionally the involvement of the deeper tissues—the result of the action of cold.

Symptoms.—Healthy persons must usually be subjected to long and excessive exposure to cold before inflammation of the skin supervenes. Anæmic and debilitated persons, however, frequently suffer from frost-bites at a temperature at which healthy individuals are not in the least affected.

Frost-bites may disappear with the return of health, but more frequently the inflammation lingers long after the exciting cause has been removed, disappearing with the advent of spring and summer, to again return in fall and winter, or upon the slightest change in the atmosphere. The chief local symptoms of frost-bites are redness, heat, itching, and an intolerable smarting or burning sensation in mild cases, and high inflammatory action, and often absolute loss of sensation in the affected part in severe cases. They may be divided into three classes, or degrees, as follows: dermatitis congelationis erythematosa, dermatitis congelationis bullosa, and dermatitis congelationis escharotica.

DERMATITIS CONGELATIONIS ERYTHEMATOSA.—Frost-bites of this form generally occur on the most exposed parts, as the hands, feet, ears, cheeks, and nose. Previous to their development the affected skin, owing to the contraction of the blood-vessels, is pale and wanting in sensation, but on the cold abating, or the patient passing into a warm atmosphere, the vessels dilate, and the part becomes livid, and often painful, burning, smarting, or itching. The local symptoms, therefore, are not much noticed during the day unless the person is in a heated room, but are decidedly annoying in the winter evenings when near the fire, or after retiring. The skin may not only be reddened, but it may be exceedingly thin, shining, and swollen from serous infiltration. Blisters may develop from friction or scratching, and finally degenerate into one or more indolent ulcers.

DERMATITIS CONGELATIONIS BULLOSA.—This more severe grade of the disease is the effect of prolonged exposure to moderate cold, or comparatively brief exposure to excessive cold. The inflammation is more intense, leading at once to great serous exudation, with the formation of blebs of varying sizes, filled with a clear or bloody fluid. Ulceration of the affected parts may follow, and extend even to the bone. The pain and itching are violent, and great œdema of the surface is present.

DERMATITIS CONGELATIONIS ESCHAROTICA.—This is the most severe form of frost-bite, and is observed especially among drunkards and those who have been exposed for a long time to the action of moist and intense cold. The skin is usually the seat of large blisters, containing blood, with perhaps mortification of the tissue beneath. If no blisters have formed, the part involved is livid or white in color, cold and insensible, the circulation being suspended or absolutely destroyed. If the vitality of the part be only interrupted, upon its restoration all the symptoms of severe inflammation follow, or, as is more common, gangrene results, and the usual line of demarcation occurs.

Pyæmia or septicæmia may develop in this form of frost-bite, and result in death.

Constitutional Symptoms.—The systemic effect of excessive or long-continued cold is, first, stimulation, to be followed by a dull and heavy sensation, with an intense desire to sleep, which, if yielded to, will result in coma and death.

Treatment.—Constitutional remedies are of the greatest value. If anæmia exist, tincture of the chloride of iron and other ferruginous preparations are of the utmost service. Patients predisposed to chilblains should receive a nutritious diet, be warmly clothed, especially with flannels, woollen gloves, and stockings, and avoid all exposure, if possible, to cold. Those who have great systemic depression or suspended animation from excessive or long-continued exposure to cold should be treated as follows: The use, at once, of hot applications all over the body, or the hot bath; covering them with hot blankets; hot drinks, if they can be taken; moderate massage or friction, and prolonged artificial respiration, if life has been apparently destroyed.

LOCAL TREATMENT.—Opinion is divided in reference to local treatment: some believing that the frost-bitten surface should be vigorously rubbed with snow, or cold water, in order to avoid producing reaction too rapidly; others claiming that hot applications, used at once to the skin, are the most efficacious. The recent experiments of Laptchinkski upon frozen dogs show that, "of twenty animals treated by the method of gradual resuscitation in a cold room, fourteen perished; of twenty placed at once in a warm apartment, eight died; while, of twenty immediately put into a hot bath, all recovered."

Applications at once of hot water to the affected area will be most acceptable in the majority of cases, especially if the part has been frozen. Occasionally cold applications act better. The remedies and combinations recommended are numerous, but few of them are at all effective. All are, however, always more decided in their action when the circulation of the part is not interfered with by the use of tight apparel and close-fitting boots or shoes. The tincture of myrrh and the compound tincture of benzoin, in equal parts, form, for ordinary cases, an excellent application. An ounce and a half of the compound tincture of benzoin, with half an ounce of spirit of chloroform, is also valuable. Cocoaine hydrochlorate, one to ten grains to the ounce of peppermint-water or dilute nitric acid, may be painted over the surface with good results. The tincture of aconite often gives relief. The following are also useful applications:

℞	Olei camphoræ	gtt. x.
	Bals. Peruv.	f ʒ j.
	Sevi	℥ j. M.
℞	Lanolini	℥ ss.
	Naphthol	gr. xv.
	Olei terebinthini	f ʒ ss. M.
℞	Lanolini	℥ ss.
	Acidi carbolici	gr. iij.
	Pulv. camphoræ	ʒ ss. M.

Balsam of copaiba, collodion, tincture of iodine, and weak solutions of corrosive sublimate, alone or combined with other remedies, are likewise valuable. When ulceration supervenes, the following combinations will be of benefit:

℞	Bals. Peruv.	ʒ j.	
	Ungt. hydrarg. nit.	ʒ ij.	
	Zinci carb.	ʒ j.	
	Ungt. aquæ rosæ	℥ j.	M.
℞	Ungt. plumbi subacetatis	℥ ss.	
	Ext. arnicæ	ʒ ss.	
	Ext. erythroxyli cocæ	ʒ ss.	
	Ol. anthemidis	gtt. v.	
	Ungt. aquæ rosæ	℥ ss.	M.

If gangrene occurs, the sloughs should be cut away as soon as the line of demarcation is formed, and the healthy granulating surface dressed with a mild stimulating ointment.

CLASS V.

HYPERTROPHIES.

(Hypertrophiæ.)

LENTIGO.

SYNONYMS.—Freckle—Somersprosse.

LENTIGO is an excessive deposit of pigment in the skin, appearing as small, round, or irregular-shaped pin's-head or pea-sized, yellowish, brownish, or blackish spots, situated commonly on the face and the dorsal surface of the hands and arms.

Symptoms.—This familiar affection is observed as small, round or irregular-shaped spots, varying in size from a pin's-head to a small pea. They vary in color from a light yellow to a yellowish brown or black, and often, when largely distributed, give the skin a dirty or disfigured appearance. The lesions may either be isolated or aggregated, and tend to coalesce. Their favorite seat is the face, particularly the forehead, nose, and cheeks, but they also appear in numbers upon the backs of the hands, neck, shoulders, and forearms, and other portions of the skin which are uncovered and exposed. They are, however, observed at times upon regions of the body which are covered, as the buttocks and penis. They occur in both sexes, and at all ages, but are seldom seen before the third year. Persons with fair skins, and particularly those with red hair, are especially prone to their development; nevertheless, they appear in brunettes and mulattoes. Freckles are usually more conspicuous in summer, as at that season they generally appear, lessening or disappearing in the winter, to often reappear the following summer. In some cases, however, they are influenced neither by light nor heat, and are as intense in color in winter as in summer. Freckles are unaccompanied by subjective symptoms. They are chronic in course, continuing for years, but with advancing age they may disappear permanently. They may occur as the result of, or in connection with, other skin diseases.

Pathology.—A freckle is shown by microscopical examination to consist essentially of a circumscribed collection of normal pigment in the rete mucosum. Chloasma differs from it simply in the shape and size of the patches.

Etiology.—The disease is not due to any constitutional disorder, and is in some cases probably the result of slight peripheral nervous disturbances. Heat, especially that of the sun, and the high winds of the spring and fall months, are exciting causes.

Treatment.—The treatment of freckles consists in the application of a mild stimulating or caustic agent, which will either excite the skin to healthy action or will destroy the affected areas, and thus cause the epidermis to be reproduced in its normal condition. Copper oleate, in from five to sixty grains to the ounce of lard, lanolin, or rose-water ointment, is an excellent application. Salicylic-acid ointment, five grains to the ounce, is also valuable. Corrosive sublimate, in from two to five grains to the ounce of a fatty base, or in water, is an effective application. Another useful method consists in touching each spot with strong carbolic acid; as a result of this the epidermis within a few days peels off, leaving a slightly red but clear skin, which soon becomes perfectly normal.

The following paste, advised by Unna, has been employed with good results:

℞	Oxide of zinc	ʒ ij.	
	Oxychlorate of bismuth	ʒ ss.	
	Sublimate	gr. iij.	
	Dextrine,		
	Distilled water	āā f ʒ ij.	
	Glycerin	f ʒ iij.	M.

Sig.: Apply once a day.

CHLOASMA.

SYNONYMS.—Liver-spot—Moth.

Chloasma is a pigmentary disease, attended with partial or general discoloration of the skin, but usually appearing as one or more smooth, yellowish-brown or blackish patches, round or irregular in form and size.

Symptoms.—Chloasma is simply the result of an abnormal deposition of pigment in the rete mucosum. It may involve part or all of the surface. It usually appears as one or more smooth patches, of various shapes and sizes, but commonly round or irregular in form and moderately well defined. Their color may vary from light or dark yellow to brown or even black (melasma, melanoderma). They may be either idiopathic or symptomatic. The former are due to external causes, which occasion long and continued determination of blood to the skin, as scratching in eczema, scabies, and urticaria, the discoloration following being somewhat diffuse, and of a grayish or brownish hue. Injuries from blows and wounds, friction and pressure from clothing, shoes, trusses, belts, and other substances, and the action of chemicals employed in sinapisms and blisters, may occasion either a slight or severe discoloration. Heat and cold as from the sun's rays, fires, frost-bites, and high winds, are all active agents in bringing about pigmentary changes of the skin.

The symptomatic form of chloasma occurs as the result of various changes of the system, and of diseases of the internal organs, as tuberculosis, cancer, malaria, syphilis, and uterine and ovarian affections. The pigmentation may be circumscribed, general, or diffuse, varying from a pale brown to a brownish olive or bronze hue. The discoloration is more conspicuous upon those parts in which there is a natural tendency to it, as on the face, dorsal surface of the hands, axillæ, nipples, genitals, and even the hair. Chloasma may likewise appear during the course of scleroderma, morphœa, senile atrophy, etc. The most frequent of the symptomatic chloasmata, which requires special mention, is that which develops from uterine and ovarian affections, and which will be described as follows:

CHLOASMA UTERINUM.—This form of the disease usually involves the face, especially the temples, forehead, and eyelids. The pigmentation may be slight or severe, but is particularly marked in those of a dark complexion. The disease may be transient, disappearing within a short time, or it may remain permanently. It generally occurs as one or more patches, of all forms and sizes, upon the forehead, frequently extending continuously or interruptedly from temple to temple, and from the scalp to above or below the eyebrows, or to and upon the lids; the trunk, particularly about the nipples, may at times also be involved. The patches vary in color from a pale or muddy yellow to a brown, and they may be well or poorly defined, occasionally passing indistinctly into the surrounding healthy skin. The surface is, as a rule, smooth and natural, but seborrhœa may occasionally exist at the same time. The patches may, especially during pregnancy, be so extensive as to cover the whole region, or almost the entire surface, giving it a diffuse discoloration which may be mistaken for the healthy skin, while that of the normal tint which remains may be regarded as diseased.

It may occur in both married and single women, but is seldom observed after the climacteric period. It appears particularly in connection with hysteria, pregnancy, and various uterine and ovarian affections, as amenorrhœa and dysmenorrhœa. It usually disappears upon the removal of the exciting cause.

Diagnosis.—Chloasma is liable to be confounded with chromophytosis or tinea versicolor. In chloasma the patches are usually single, unless the disease is general, appearing mostly on the face, while in chromophytosis they are multiple, rarely invade the face, but commonly occur on the trunk. The surfaces of the patches of the two affections are likewise dissimilar, those of chloasma being smooth and exhibiting no alteration in structure, while those of chromophytosis are hyperæmic and furfuraceous, as shown by scraping the parts with the finger-nail. Further, the microscope demonstrates chloasma to be pigmentary, and chromophytosis to be parasitic. Lastly, the patches of chloasma having become fully formed, spread slowly, if at all, and have rarely any subjective symptoms; on the other hand, chromophytosis usually develops rapidly, and is commonly attended with itching.

Pathology.—The seat of the pigmentary deposit is the rete mucosum.

Etiology.—The affection appears at all ages and in both sexes, but is more common in women. Disorders of the various internal organs, malaria, and certain blood affections, particularly anæmia, are its most exciting causes. It may also be produced by profound mental excitement, and by many nervous diseases. Local irritation or inflammation, as, for example, the pressure of a hat, bonnet, or a band, or eczema, erysipelas, and other cutaneous inflammations, may produce the disease.

Treatment.—The same treatment which is applicable in lentigo is also suitable in chloasma. The general or local cause of the disease should, if possible, be removed in order that the topical applications can act effectually. As the pigment is deposited in the rete cells, the object of the local treatment is to destroy the epidermis containing them and thus remove the deformity. In selecting local remedies great care should be exercised to avoid the use of mustard, mineral acids, cantharides, croton-oil, or any other substances which may cause pigmentation. Among the many suitable remedies are the tincture of iodine, acetic and carbolic acids, mercurials, the alkalies, especially caustic potash, and the potash and soda soaps, veratrina, and copper oleate. The pigmentation may be easily removed by touching the spots with strong acetic or carbolic acid. Hebra's method consists in dissolving five grains of corrosive sublimate in an ounce of distilled water, alcohol, or collodion, and applying it by means of a compress to the affected part for four hours. A blister results, which should be pricked and dressed with powdered starch. The epidermis falls off and is replaced by new skin which is lighter in color, but which will not always remain permanently free from pigment.

Unna suggests ("Berliner klinische Wochenschrift") the following procedure: The skin is first washed off with spirit of wine, after which a mercurial plaster, prepared from white precipitate, is applied to the pigmented area and permitted to remain overnight. The next day the following combination is applied:

℞	Bismuth. subnit	ʒ jss.	
	Kaolin	ʒ jss.	
	Vaselinæ	ʒ vj vel ℥ iss.	M.

The tincture of iodine or sulphur, with acetic acid, as recommended by Neumann, or the application of potash soap continuously for a part or an entire day, will be very effective. Remedies may, however, be used which are less irritating and act more gradually. I prefer for this purpose either the ointment of mercuric or mercurous oleate, or one containing from thirty to sixty grains of copper oleate to the ounce. The ointment of nitrate of mercury, alone or diluted, or veratria, ten to thirty grains to the ounce, or an ointment containing equal parts of white precipitate and subnitrate of bismuth, as suggested by Neumann, may be employed. Corrosive sublimate, acetic acid, tincture of benzoin, tincture of soap and borax, are also valuable. The following may be used with advantage:

℞	Hydrargyri chloridi corrosivi	gr. x.	
	Spt. vini rect	f℥ ij.	
	Aquæ rosæ	f℥ ij.	M.

[It is necessary, in this connection, to refer to certain other transient or permanent discolorations which resemble chloasma. A marked example of this occurs in icterus or jaundice; the coloring-matter of the bile passing into the skin changes its color to deep yellow. The main treatment, then, is that of the disease which gives rise to it. The itching and pigmentation may, however, be lessened by massage and the simple vapor, or the Turkish or Russian, bath. Another instance may arise from extravasated blood. The treatment depends upon the exciting cause. When the extravasation and discoloration, its sequence, are due to traumatism, leeching and the subsequent application of white precipitate ointment is valuable. Discoloration of the skin may also result from the use of nitrate of silver, developing a varying shade of color, according to the quantity deposited, from a grayish-slate, bluish-bronze, to a blackish. The staining may be over the general surface, but is more common on the mucous membrane of the gums, the face, and hands. The metallic silver has been demonstrated to be deposited in minute granules in the internal organs and the mucous membrane as well as the skin.

For this condition, which is known as "argyria," the internal use of iodide of potassium has been recommended; but the results are usually negative.

The skin may be colored of various hues by tattooing. Vermilion, charcoal, gunpowder, and indigo are the substances generally used for this purpose. The pigment is introduced into the skin by a needle or a series of them, and remains where it has been mechanically inserted. Cases showing remarkable and elaborate effects in this direction have been publicly exhibited both in this and other countries.]

Prognosis.—Chloasma only demands attention on account of the staining it occasions. It may disappear with the removal of the cause or by the application of suitable remedies. Frequently it may remain permanently or quickly reappear, notwithstanding all efforts. Discoloration resulting from metallic silver or from tattooing is usually permanent.

NÆVUS PIGMENTOSUS.

SYNONYMS.—Pigmentary mole—Nævus maternus—Nævus pilosus—Nævus verrucosus—Fleckenmal—Nævus pigmentaire.

Pigmentary nævus, which may be congenital or acquired, consists generally of a circumscribed deposit of an excessive quantity of pigment, alone, or together with hypertrophy of the connective tissue, or of all the cutaneous structures, including the hair. Nævi are of all dimensions, but are usually small, about the size of a split pea, or covering a large part of the surface, as stated by Wilson.* They may be round, oval, or irregular in shape, and vary in color from yellow to brown or blackish. They may be flat—often on a level with the skin, or more or less raised. Their surface may be smooth and unaltered, and they are then known as nævus spilus; or rough and warty—nævus verrucosus—or there may be a marked connective-tissue hypertrophy, producing thick, soft, or firm variable-sized growths, known as nævus molluscaformis, or lipomatodes.

They may or may not be supplied with a growth of hair. If hair is present, it may be soft; but more commonly it is stiff. A nævus supplied with hair is known as nævus pilosus. Pigmentary nævi occur in both sexes, and may be single or multiple. They appear on all parts of the body, but are most frequently met with on the face, neck, and back. Occasionally they follow the course of nerve-tracts. Their growth is usually slow, but sometimes they increase rapidly in size.

Pathology.—Pigmentary nævus consists usually of a circumscribed deposit of an excessive quantity of pigment in the mucous layer of the epidermis, with more or less connective-tissue hypertrophy.

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* Wilson on the Skin and Hair, Philadelphia, 1876.

Etiology.—No cause has as yet been assigned for the development of pigmentary nævi.

Treatment.—Excision is, beyond all doubt, the best method of removing all the forms of this disease. They may be removed also by ligature, or by the application of ethylate of sodium and other caustics. The galvano and the actual cautery act promptly.

Prognosis.—Pigmentary nævi usually continue a lifetime, and seldom disappear spontaneously. They should, unless too numerous, be removed or destroyed, as they may, according to Rindfleisch, degenerate into pigmentary sarcoma.

CALLOSITAS.

SYNONYMS.—Callus—Callosity—Tyloma—Tylosis.

Callosities consist merely of an hypertrophy of the horny layer of the skin, characterized by the formation of thickened, translucent, or grayish, yellowish, or brownish patches of various sizes and shapes, occurring most frequently on the hands and feet.

Symptoms.—The epidermis increases in thickness, and assumes a grayish, yellowish, or brownish color. It presents a more or less horn-like, firm, dense structure, which may be insensitive and smooth, or upon which the normal furrows and lines are less marked. Occasionally, when a large area is involved, the surface may be roughened, raised in ridges, or cracked and extremely painful. The color, appearance of surface, consistency, size, shape, and subjective symptoms, if any be present, will vary according to the exciting cause. The thickening usually occurs in circumscribed patches, which are usually round, but they often conform to the part which is covered. In size they vary from a five-cent piece to that of the entire region which is involved. They have their seat generally upon the palmar and plantar surfaces, on the fingers and toes, especially on the ball of the great and the side of the little one, or upon any part where pressure exists.

Callosities are gradual in their development. They may remain unchanged indefinitely, or they may be complicated with a mild or severe inflammation which may terminate in their removal. Sometimes the thickened skin, more particularly on the removal of the cause, may by spontaneous involution be restored to its normal condition.

Pathology.—The callosity is simply hypertrophy of the horny layer of the skin. Simon has shown that this change takes place in the horny layer alone, the corium remaining normal. Robinson notes that the latter is not involved to any extent, yet the excessive cell-growth must derive its basis from the vessels of the true skin.

Etiology.—Callosities may occur at all ages; but they are more frequently observed in middle and old age, and in men than in women. They are almost always produced by external influences ; but cases may appear, as, for example, on the dorsal surface of the fingers and on the glans penis, without any known cause. Percussion, pressure, or friction, or the handling of certain substances, as water and chemicals, may cause their growth. Their location frequently indicates the occupation of the individual affected, as they are often seen on the tips of the fingers in violin, harp, and guitar players.

Treatment.—Callosities are generally a protective envelope to the parts beneath, and should only be interfered with when they occasion deformity, inconvenience, or pain. Circumscribed callosities may be relieved or cured by the application of the galvanic current or the use of static electricity. Medicated plasters of either mercury, salicylic acid, lead, or copper oleate, are also useful, particularly when a large surface is thickened and painful, interfering with the occupation of the patient, as when the feet are involved. Salicylic-acid plaster, or, even better, a plaster composed of four parts of the above drug to one part of copper oleate is especially valuable. Thin demonstrated the practical value of salicylic-acid plaster before the London Clinical Society, and Will* and others have likewise testified to its efficacy. Hot water, oils, poultices, and soft soap, alone or combined with tar or mercury, may also be used to soften and remove callosities. The application of acids or alkalies, especially caustic potash, and the employment of the knife, should always be avoided when milder remedies are at our disposal. If inflammation arises, it should be treated upon general principles.

CLAVUS.

Synonyms.—Corn—Leichdorn—Hühnerauge—Cor.

Clavus is a more severe but localized callosity, painful on pressure, and usually limited to the feet.

Symptoms.—A corn is a small, somewhat elevated thickening of the epidermis, varying in size, but usually being about that of a split pea. It may be yellowish or yellowish-brown in color, smooth, polished, hard and horny, or white, flat, soft, and spongy. The former is known as the hard, and the latter as the soft corn. Corns may occur on various parts of the body, and they may be single or multiple in number. They are most commonly met with on the feet; the toes, especially the little one, and the plantar surface are the portions generally affected. Those which occur between the toes become macerated and softened by the moisture of the parts. A blister may form under one of these soft corns, and the poured-out fluid discharge from a little central opening in it, which may be followed by severe inflammation of the toe or even the foot. All corns are attended with more or less uncomfortable feeling or suffering, more particularly in changeable weather. There may also be a sharp, darting, or shooting pain, occasionally so great as to prevent the individual from either standing or walking.

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* British Medical Journal, March 29, 1884.

Pathology.—A corn is an hypertrophy of the horny layer of the skin in the form of a cone with its base looking outward and its apex turned inward toward the cutis. The cone is made up of epidermic cells, arranged in concentric layers. It may have one or more projections passing down to the true skin, which are commonly referred to as the roots or cores, and which by pressure on the sensitive papillæ occasion pain. The corium around the base of the cone may be hypertrophied, as well as the papillæ; but the latter are more frequently atrophied.

Etiology.—Corns, like callosities, are an effort of nature to protect the parts subjected to pressure. Pressure and friction are the causes of their development. They are usually occasioned by wearing tight or badly fitting shoes.

Treatment.—The most essential point of the treatment is to remove all pressure and friction from the part affected. Corns may at once disappear or cease to occasion trouble after being thus treated. In the event that further treatment becomes necessary, they may be either removed by an operation or be palliated or caused to disappear by static electricity, galvanism, or by certain medicinal applications. A hard corn can be successfully removed by carefully separating the base with a knife from the adjoining portion of the sensitive skin, and then with a still smaller one cutting out the one or more apices or cores which exist. The entire fibrous mass may thus be lifted or pulled out in one piece. This operation requires considerable experience and skill in order to perform it successfully. Corns may be relieved and protected from pressure by pieces of cotton, felt, or amadou alone or medicated. The frequent use of hot water, or oil, or poultices to the corns, or paring off the thickened base, will also give temporary relief, and will assist the action of such preparations as alcohol, collodion, compound tincture of benzoin, turpentine, nitrate of silver, and caustic potash.

Among other useful applications are salicylic acid, cannabis indica, lead and copper oleate, either in the form of ointments or plasters. The following combination is recommended by Gezon:

℞	Acidi salicylici....................	gr. xxx.
	Ext. cannabis indicæ.............	gr. x.
	Collodion...........................	f ℥ ss. M.

This should be applied twice daily with a brush for several successive days, and the corn afterward macerated in warm water, when it may be readily removed.

Soft corns may be cured or relieved by cutting away the thickened skin with the scissors and applying salicylic acid in powder or ointment, from thirty to sixty grains to the ounce, and a piece of cotton or wool kept constantly between the toes.

Prognosis.—On the removal of the exciting cause, corns as well as callosities usually disappear.

CORNU CUTANEUM.

SYNONYMS.—Cornu humanum—Cutaneous horns—Horny excrescence—Horny tumor—Hauthorn—Corne de la peau.

Cornu cutaneum is an hypertrophic disease of the epidermis, characterized by the formation of a true horny outgrowth of varying shape and size.

Symptoms.—Horny outgrowths, which resemble very much in appearance the horns of the lower animals are occasionally developed upon the human skin. The shape and size of these excrescences vary; they may be straight or curved, but are usually twisted in various directions, sometimes assuming the appearance of a ram's horn, as in Fig. 12, taken from a photograph of a case under the care of Prof. W. H. Pancoast, of Philadelphia.

In other cases they are cylindrical, conical, or flattened in appearance. The free end may be pointed, but it is generally blunt or split up. The growth outside is solid and hard, but within it may be soft and crumbling. The surface is dry, wrinkled, and fissured. In color, horns are generally grayish, but they sometimes vary from a light yellow to a dark yellow, brown, or even black. In size they are generally small, but they may grow from one to many lines in length and thickness. Thus, Porcher described a horn which developed from the forehead of a negress, and which was seven inches long and two and three quarters inches in diameter. The bases of horns are broad, flattened, and concave, resting directly upon the skin, which is either normal, hypertrophied, or more or less inflamed. They may appear upon any part of the body, but are observed most frequently about the head, particularly on the face and scalp; their next most common location is the genitals.* They are usually single, but may be multiple, as in Boettge's cases, the one being a man who had six horns on his face, and the other a young girl, the lower half of whose body was studded with them. Horns are more frequently seen on old people than the young. They are slow and painless in growth, and, after having attained a certain size, they generally shed or are broken off, often leaving an ulcerating surface. After a horn has existed for some time, or if irritated or injured, it may become painful, particularly about the base.

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* "Report of Horny Growths on the Penis," by Pearce Gould. Medical and Surgical Reporter, March 19, 1887.

Pathology.—Microscopic examinations demonstrate that cutaneous horns consist of a hyperplastic growth from the stratum mucosum, which is either situated over the papillæ of the corium or within the follicles and glands. Enlarged papillæ with blood-vessels have also been observed.

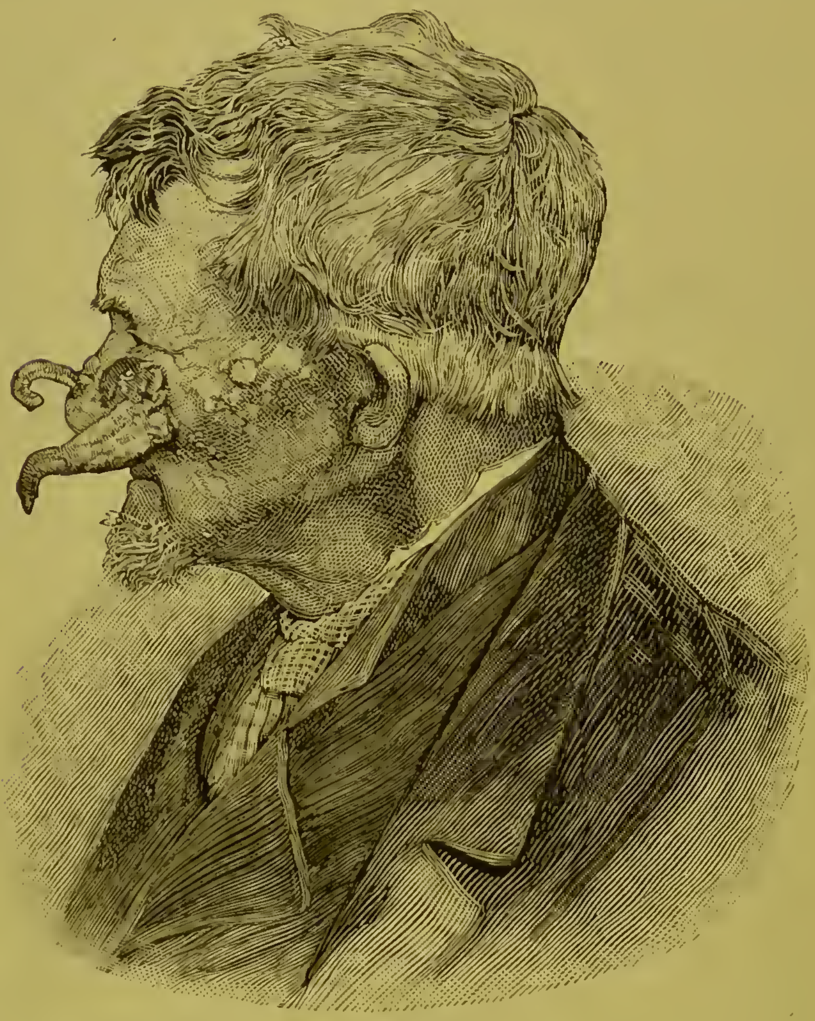

FIG. 12.

Etiology.—Pressure, wounds, and various other injuries to the integument may occasion the development of cutaneous horns.

Treatment.—Horns should either be ligated at their base, or, what is even more preferable, the entire growth should be excised, with a portion of the skin from which it springs, and the surface cauterized with either the actual cautery, the galvano-cautery, or with zinc chloride or arsenic oleate.

Prognosis.—Horns are apt to recur if they are shed, broken, or torn off from their base. Experience has shown that their removal is necessary, both on account of the deformity which they occasion and their tendency in old people of degenerating into epithelioma. If removed by the operation just suggested they seldom redevelop.

KERATOSIS PILARIS.

SYNONYMS.—Lichen pilaris—Pityriasis pilaris.

Keratosis pilaris is an hypertrophic disease, characterized by the appearance of pin-head-sized conical elevations about the orifices of the hair-follicles.

Symptoms.—The affection appears in the form of an accumulation of epithelial cells and sebaceous material about the orifices of the hair-follicles, forming minute conical elevations or papules. These papules are pin-head in size, pierced with a hair, or contain a convoluted or twisted hair, and around them the epithelial and sebaceous material is arranged in the form of laminæ. The hairs may project from the apices of the papules, or be broken off close to the surface, showing a dark or black point in their central part, or they may be invisible, being contained within the accumulated masses. In color, the formations are dirty white, gray, or brown, and are situated on the skin, which may be normal in hue or reddened, scaly, and dry. The skin to the touch feels rough and harsh, as in ichthyosis; the elevation, however, being marked, and in severe cases resembling a nutmeg-grater. The favorite seat of the disease is the extensor surfaces of the extremities. It is most frequently met with upon the thighs, the arms, and forearms, but it may occur as well upon all the body. It may be present to a slight or to a great extent. It is chronic in course, and may or may not be attended with itching.

Diagnosis.—The disease is most likely to be confounded with cutis anserina (goose-flesh), but the latter is a transient condition arising from a temporary erection of the hairs from either nervous excitement, cold, or heat, and rapidly disappears. It is to be distinguished from lichen scrofulosis by the latter tending to occur in groups, particularly upon the abdomen, and in the lesions being firmer and not so scaly. Lichen pilaris may also bear a close resemblance to desquamating miliary papular syphiloderm, but differs from it in the lesions not developing in groups, and being neither so scaly nor so deeply seated.

Etiology.—Keratosis pilaris may be due to the physiological activity of the hair-follicles and glands which takes place at puberty. The neglect to employ water and soap sufficiently, as well as their too free use, has also been known to occasion the disease.

Treatment.—The moderate use of water and soap, the solution of boro-glyceride or sublimate, or, in severe cases, sapo viridis, will usually be all the treatment needed. The warm water, the alkaline, the vapor, Turkish, or Russian bath can also be used. In severe and obstinate cases, the oil of ergot, almond-oil, glycerine, and petroleum-ointment are also serviceable.

Prognosis.—The disease quickly yields in most cases to treatment, but, if not counteracted, it may persist indefinitely.

PSORIASIS.

SYNONYMS.—Lepra—Alphos—Lepra alphos—Psora—Schuppenflecte.

Psoriasis is a chronic inflammatory cutaneous disease, characterized by an outgrowth of the epithelial layers of the skin, and generally appearing as slightly elevated, round, and reddened patches of various sizes, covered with dry, white scales.

Symptoms.—Psoriasis usually begins with the development of very small papules covered with dry, white scales. They are present in considerable numbers, but are invariably separated by large or small areas of healthy skin. They are about the size of a pin's head, and from their punctiform appearance are termed psoriasis punctata.

If the scales be gently scraped off, the reddened surface beneath will readily bleed. The papules may remain stationary, but generally increase in size until they are as large as lentils, and resemble in color and appearance drops of mortar; they are then designated psoriasis guttata.

In the mean while new punctiform points may appear in the intervening healthy skin.

When the papules attain the size of a pea or a walnut, covered with a quantity of dry, white, firmly-adherent scales, and having the appearance of an ordinary coin, they are known as psoriasis nummularis.

Spots of psoriasis punctata, or psoriasis guttata, can also be recognized, scattered over the surface, which have developed while the older patches have been increasing in size. The patches in many cases coalesce, becoming irregular in form and of all sizes. New spots continue to break out, until the disease may cover the whole surface of the body. This condition is termed psoriasis diffusa, or psoriasis universalis. Sooner or later the masses of epidermic cells separate, partially or generally, and, in falling off, expose reddened spots, slightly raised above the level of the natural skin. In those cases in which the epidermic cells have only dropped off partially from the centre, the scales remain adherent at the margin of the patches, presenting a circular or annular appearance. As the affection progresses, the central red spots become pale, like the healthy skin, and surrounded with rings of scales, if they have remained adherent, or with an erythematous areolæ, if the scales have fallen off.

The blending of these rings or segments produces serpentine lines and patterns of striking appearance. Psoriasis may remain in the condition just described, now improving and again relapsing into its former state; or it may occur—which is more frequent—as small patches scattered over the chest, and in larger spots over the elbow, sacrum, and knee. In many instances, however, patches which were large and prominent gradually lose their characteristic appearance, fade, and disappear, but are quickly succeeded by others. In addition, fresh spots crop out, and, although an alteration and change occur, yet the eruption will not undergo a cure. In other cases, while fresh patches appear, the original ones remain, and together they gradually invade all the unaffected healthy skin. At times, but rarely, the affection may subside spontaneously. In that event the scales become less adherent, and finally fall off entirely, leaving the reddened, circular patches slightly elevated above the surrounding healthy epidermis. The redness gradually lessens until the normal appearance of the skin is restored, without pigmentation or scars. Psoriasis may attack any portion of the body, but it is at times limited to the elbows and knees.

After these sites it next most frequently affects the head, the red or scaly rings extending somewhat beyond the hair to the forehead, ears, and neck, producing more or less disfigurement. When the eruption affects the scalp the hairs are usually not involved; they seldom fall out, and retain their normal lustre and color. While the eruption may pass down to the forehead, neck, and ears, and the hearing occasionally become impaired by the scales blocking up the auditory canal, yet the face is rarely affected in its entirety.

Psoriasis seldom involves the palmar and plantar surfaces, but will, in some cases, attack the nails. The form of psoriasis that affects the nails was first described by Biett, and generally coexists with the disease in other portions of the body. Upon the first appearance of the disease, while the nail is transparent, a spot of psoriasis may, at times, be observed beneath it.

In many instances this elementary development may escape observation, the morbid action having already affected the matrices of the nails, giving them a thickened, rough, yellowish, or brownish appearance. They lack their peculiar lustre, are brittle and fissured, and do not extend beyond the end of the fingers.

Psoriasis never appears on the vermilion border of the lips nor on any of the mucous membranes, and Hebra, in all his large experience, never observed a single case in which any organ other than the skin could with certainty be said to be involved.

Psoriasis is especially a chronic, non-contagious disease, attended with itching in its early development, at the time of its relapses, and upon the appearance of new spots. The itching may be severe, but it gradually subsides with the extension of the spots, and is often entirely absent. I have noticed a prominent subjective symptom, not usually described, in some typical cases of psoriasis; in those cases in which the larger portion of the skin was involved, they complained of a tight, tense feeling of the surface, and could always predict a fresh outbreak of the eruption by a preceding flushing of the skin.

The scales in some cases are very abundant, and may be firmly attached to the patches, or, as is more common, especially if the disease is extensive and has been of long duration, are shed in large quantities in the bedclothes or on the patient's clothing. Patches that have many firmly adherent scales will have a dirty-white appearance, while those that are sparsely covered will present a red tint. In some inveterate cases in which the scales have almost entirely fallen off, the patches are deep, red, angry in appearance, attended with heat, burning and pain on motion, become fissured, and are hard, rough, and uneven to the touch.

The eruption, however, is always dry from the beginning to the end, and is never attended with any other lesions except those that have already been related. It may, and is, at times, associated or complicated with other affections, both internal and external. Kriebeln refers to a pricking sensation in the tips of the fingers and toes, and Hebra has said that neuralgia, especially sciatic, is a frequent complication.

Diagnosis.—An eruption presenting the course and symptoms just described could not possibly be due to any other affection. The diseases which most resemble it are eczema squamosum, syphilis, seborrhœa, lupus erythematosis, ichthyosis, lichen ruber, pityriasis rubra, and tinea capitis.

Eczema squamosum, while differing very much from psoriasis, is frequently mistaken for it.

In psoriasis, the most prominent lesion is the mass of epidermic cells. The sensation of itching, which is usually slight, is only present when the patches first appear; the scales are silvery, thick, and are seated on dark-red patches involving by preference the extensor surfaces.

In eczema, the primary lesion is usually the erythematous patches or the vesicles, pustules, crusts, or moist spots; the subjective symptom of itching is greater, and usually lasts during the entire course of the disease; the scales are not silvery, but are thin, loosely situated on bright-red patches, manifesting a preference for the flexor rather than the extensor surfaces.

The course of the two affections can thus be seen, from the dry, uniform eruption in psoriasis, and the polymorphous lesions in eczema, to be dissimilar in every way. Again, psoriasis of the head may be distinguished from eczema by the patches being discrete, with intervening healthy skin, and covered with scales that are thicker, darker, and drier than those of eczema. Psoriasis spreads in segments over the forehead, the neck and ears, and rarely passes beyond these limits. Eczema passes rapidly from the scalp to the forehead, neck, and ears, and will often invade the entire face.

Further, the patches of psoriasis are always clearly outlined and show a tendency to heal in their centre, while those of eczema fade away into the healthy skin, and have no tendency to heal in the centre.

The adherent scales, situated on red spots over the forehead, arms, and limbs, separated by tracts of healthy skin, in a limited syphilitic eruption may be mistaken by the casual observer for psoriasis. A more careful examination of the scales will show that they are of a dirty color, and that the red spots on which they rest extend beyond them; in psoriasis the scales are silvery or whitish in color and generally extend beyond the red bases which they cover. The preceding symptoms of lassitude, backache, and headache, furred tongue, sore throat, and all the symptoms of syphilitic fever, with their entire disappearance upon the breaking out of the eruption, will be additional evidence of a syphilide. A scaly eruption may be present in the palms of the hands and soles of the feet, a situation often attacked by syphilis, but rarely affected with true psoriasis. In cases of long standing, the appearance of crusts, mingled with scales, spots in the process of fading having a coppery hue, mucous patches, or scars, or the enlarged lymphatic glands, particularly the trochlear, will always stamp the case as syphilitic.

Seborrhœa sicca may resemble psoriasis of the scalp. The patches of the former will be found to be crusts composed of sebaceous material, fatty and greasy to the touch, leaving upon removal a pallid surface, and not a reddened, bleeding base as in psoriasis.

In seborrhœa the scales consist of dried sebum, while in psoriasis they are composed of epidermic cells. Psoriasis may develop on any part of the body, and when it involves the scalp may pass down on the forehead. Seborrhœa, on the contrary, is generally confined to the scalp, the eruption only forming a scurvy mass just beyond the margin of the hair. The hair, in seborrhœa, often loses its lustre and falls out in large quantities, while in psoriasis no loss or change whatever takes place.

Lupus erythematosus is usually confined to the face, while psoriasis is seldom seen in that situation alone. The lupus spots are covered with thin, scanty, firmly-adherent, dry or greasy white or yellowish-brown scabs and crusts, upon the removal of which the ducts of the follicles to which they were attached appear plugged with comedones; the scales in psoriasis are abundant, always dry, white or silvery, fall off, or are easily removed, and rest upon reddened patches.

Lupus is a disease of adult age, and is attended with pain and tissue-destruction, with the formation of scars; psoriasis occurs during all ages, and is not accompanied by pain or scarring.

Ichthyosis is a congenital disease, appearing during or after infancy; psoriasis usually appears at a later age. Ichthyosis is unattended with any evidence of irritation or inflammation, the skin is mapped out in spaces, harsh, rough, and dry, and covered with fine, brownish scales, while in psoriasis the inflammatory patches are separated by perfectly healthy skin, and the spots are covered with whitish, silvery scales.

Lichen ruber occurs much less frequently than psoriasis, and its lesions are characteristic and distinct. Lichen ruber is attended with great constitutional disturbance, while psoriasis is not accompanied with any impairment of health. The papules in lichen ruber are covered with scanty yellow scales, unlike the whitish ones of psoriasis.

Pityriasis rubra attacks the unhealthy, psoriasis the healthy. The scales do not accumulate as in psoriasis and fall off, but exfoliate in large flakes, leaving the skin beneath red and tender.

Tinea capitis will give rise to a scaly condition which might at times be mistaken for psoriasis, but the hairs are affected, lustreless, and broken off; the scales are scanty, except where the parasite is most active, around the margin of the patch. In psoriasis the hairs are usually normal, and the scales abundant over the entire patch.

The history of the case, its limitation generally to one patch, and the occurrence of vesicles and pustules around the periphery, should lead to a microscopical examination for the parasite, the discovery of which will remove all doubt.

Pathology.—The pathological anatomy of psoriasis has been carefully studied by many investigators. Hebra examined the skin of persons affected with psoriasis, who died from some intercurrent disease, and reported that no abnormal condition could be detected, either with or without the microscope, upon structures that were the seat of the disease during life. He therefore limited himself to the morbid products as they appeared on the living body to the naked eye, as heaps of scales made up of epidermic cells situated on a hyperæmic skin.

Wertheim, after excising and examining portions of the skin of psoriasis patients, found constant enlargement of the papillæ of the skin, and conjectured that their vessels were also enlarged.

Auspitz * was perhaps one of the first to call attention to the action of the cells of the rete Malpighii in an article on the relation of the epidermis to the papillary layer. Neumann found the epidermal cells and the rete Malpighii greatly developed, the papillæ considerably enlarged, especially in chronic cases, the corium and papillæ also filled with cells. From this he concludes that psoriasis is a disease of the most superficial strata of the corium and papillary layer, accompanied with cell proliferation, and in which the papillæ appear considerably enlarged. Further, that "the excessive formation of scales is only a hyperplasia of the cells of the rete Malpighii, accompanied by increased desquamation of the epidermis."

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* Archiv für Derm. und Syph., Erstes Heft, 1870.

Tilbury Fox, reasoning upon both his own and Neumann's observations, added later that he "was constrained to believe that the disease consists primarily and essentially in a misbehavior of the cell-elements themselves, a perversion of the ordinary cell-life of the epidermis."

The pathology of psoriasis has also been studied by Thin,* Jameson,† and Robinson.‡ According to the latter, the disease consists essentially of a hyperplasia of the normal constituents of the rete Malpighii. The increase occurs principally in the interpapillary portion of the layer, which, growing downward, gives the papillæ of the corium the appearance of an increased size, which is not found to be the actual case upon a closer examination. The superficial blood-vessels of the corium, in the more advanced form of the disease, become dilated, the white corpuscles migrate, and the blood-vessels and the connective tissue of the corium become the seat of round cell-infiltration which, with the effused serum, divides the connective tissue into open meshes. The sebaceous and sudoriparous glands are not at any time involved, but there is hyperplasia of the external root of the hair, extending into the encircling cutis, which corresponds to the Malpighian layer of the epidermis.

Etiology.—Psoriasis may be dependent upon hereditary or acquired disease, or it may follow any derangement of the system which leads to an interference with the nutrition of the skin. Thus, it is known to arise very frequently from rheumatism and gout. Again, it is at times noted to follow eczema, syphilis, and other affections which produce an impoverished condition of the blood. It may also have a nervous origin, arising, as Weyl has well said, "from a functional weakness of the nervous centre regulating the nutrition of the system." Wilson viewed psoriasis as a manifestation of the syphilitic poison after transmission through one or more generations. Lang, on the other hand, believed it to be due to a fungus which he claimed to have discovered, and named epidermidophyton. Psoriasis is met with in those who are apparently in robust health, as well as in those who are weak and poorly nourished. It is at times apparently the result of mechanical or chemical irritation, as from pricking the integument in vaccination or from pressure of clothes and bands, cupping, leeching, blisters, wounds, and injuries. Psoriasis may appear at any period of life, but it is more commonly encountered at the age of puberty.

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* British Medical Journal, September 4, 1880.
† Edinburgh Medical Journal, January, 1879.
‡ New York Medical Journal, July, 1878.

Treatment.—The treatment of psoriasis is usually unsatisfactory. In order to either relieve or eradicate the disease, months of careful attention to hygienic measures, as well as internal and external medication, must be resorted to. The hygienic measures of most importance are exercise, massage, and bathing. The diet, especially in the most recent cases, should contain a less proportion of nitrogenous food.

The functional activity of the skin, the alimentary canal, and the kidneys, should be increased so that the blood, which is loaded with morbid products, may be depurated and oxidation promoted. The skin may be rendered more active by exercise, massage, and baths, or by the administration of diaphoretics, such as antimony, ipecac, jaborandi, or its active principle, pilocarpine. The alimentary canal may be stimulated by the natural mineral waters, especially the Friedrichshall, Congress, or Bedford. Epsom or Rochelle salts, senna, rhubarb, cascara sagrada, podophyllin, or one of the mercurials, will answer the same purpose.

The activity of the kidneys may be increased by colchicum, digitalis, copaiba, potassium acetate, lithium carbonate, and other diuretics. In the majority of recent cases, and in some of the more chronic, I usually begin the treatment with the hygienic measures just suggested, together with an occasional diaphoretic, diuretic, and cathartic. The preparations of iron, diluted phosphoric acid, cod-liver and chaulmoogra oils, fluid extract of berberis aquifolium, and the preparations of antimony and turpentine, are at times found serviceable. In the majority of cases, however, notwithstanding all treatment, the disease will continue and gradually become chronic. In the latter stage of the disease almost every known drug has been vaunted at some time or another as possessing a specific action. They have all been tried, by the alimentary canal and by the epidermic and hypodermic methods, with decided benefit from only one drug—arsenic. A remedy which has been brought forward by Dr. Napier,* of Glasgow, is chrysarobin, from which he reports good results, given in one-half-grain dose, combined with sugar of milk, and the dose increased up to the limits of toleration. After giving this remedy in a number of cases and having observed no decided effect from it, I am inclined to believe that it acts simply as a purgative. Salines, especially the natural spring waters and other purgatives, have been highly extolled at different times as remedies for this affection, and chrysarobin acts in a similar manner to them by producing free elimination from the intestinal canal.

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* London Lancet, May 20, 1882.

The eruption becomes pale under its use and disappears, but again reappears upon discontinuing the drug. It would be unwise to continually purge a patient to keep the disease in abeyance. Burdock-seed, made in the form of a tincture with whisky, has also been lauded as a specific for the eruption. Unfortunately, I must say that it too, after a fair trial, has proved utterly valueless in my practice in psoriasis. As previously stated, I regard arsenic as the most efficient of all internal remedies after the acute stage of the disease has passed. The preparations of arsenic which I employ are arsenious acid, the arsenite of sodium (Pearson's solution), and the solution of arsenite of potassium (Fowler's solution). Arsenious acid, or the arsenite of soda, is to be preferred to the solutions of arsenic, for the reasons stated in the chapter on treatment. The solutions of arsenic, if given, should be employed first in minimum doses and gradually increased. From one to twenty drops of either the solution of arsenite of potassium or of sodium can be administered. The average dose of either is from five to ten drops three times a day. Arsenious acid or arsenite of sodium may be given in from $\frac{1}{40}$ to $\frac{1}{10}$ of a grain in pill-form. I have in some cases given them in combination with other drugs with a very happy effect, as in the following prescriptions:

℞ Acidi arseniosi	gr. j.
Quiniæ sulphatis	gr. xl.

M. Ft. pil. no. xx.
Sig.: Take one pill after meals.

℞ Sodii arsenitis	gr. j.
Extracti hyoscyami	gr. v.
Extracti gentianæ	gr. xx.

M. Ft. pil. no. xx.
Sig.: Take one pill after meals.

Occasionally the value of arsenic is much enhanced by giving both quinine and strychnine with it, as in the following combination:

℞ Quiniæ sulphatis	gr. xxx.
Acidi arseniosi	gr. j.
Strychninæ sulphatis	gr. ss.
Aloini	gr. j.
Extracti belladonnæ	gr. iij.

M. Ft. pil. no. xl. Sig.: Take one pill after meals.

The hypodermatic administration of arsenious acid, or, even better, arsenite of sodium, often acts most decidedly in lessening or in entirely removing the eruption, after the remedy has failed to accomplish the least good by the stomach. I use for this purpose the arsenite of sodium, beginning with one tenth of a grain, dissolved in water, and injected daily into the deep cellular tissue of the back, arms, or buttocks. The dose is gradually increased until the patient can tolerate one-half to one-grain doses given twice a week or daily in this way.

The dose of arsenic, whether it be given by the above method or by the stomach, should be gradually increased until some effect is produced. The evidence of its action will be in the lessening of the scales and redness of the patches, which slowly acquire a brown tinge and finally entirely disappear. It will often be necessary to give the remedy for a long period before this effect is observed, and to continue administering it for some time after the eruption has disappeared. While arsenic is no doubt effective, it is by no means a specific, and, under its use, new spots may crop out, and in some instances relapses occur. Notwithstanding the occurrence of relapses, the persistent use of the remedy will, in many cases, eventually eradicate the disease. In others, however, the disease will remain or undergo relapses, even though the physician may give the arsenic as recommended and exercise the best skill in managing the affection. All that can be hoped or looked for in such cases is that the eruption may be kept in abeyance, and the disfigurement of the body averted.

Local Treatment.—Local remedies are of great assistance in treating psoriasis. It is necessary, however, in order that the application may be effective, to macerate and remove the epidermic scales, and expose the hyperæmic skin beneath. This object may be accomplished by giving the patient a warm, hot, or medicated bath, or by packings and frictions, by rubbing well into the patches lard, olive or cod-liver oil, which should be allowed to remain for a time, after which it should be washed off with either a simple or medicated soap, in a warm or hot bath. Soap used in this manner, containing either naphthol, tar, or carbolic acid, frequently assists in promoting the softening of the epidermis. If the patches are not extensive, the scales may be removed by poultices, or oil and water, applied with cotton, lint, or bandages. They can also be removed by producing active diaphoresis, by covering the affected surface with oiled silk and rubber cloth, or, even better, by waxed or oiled paper. The latter application, which I use entirely in hospital practice, is a cheap, convenient, and easy means of promoting elimination from the surface, and is within the reach of almost every individual.

In some subjects copious draughts of water, with plenty of exercise and long immersion in warm or hot baths, will be sufficient to render the skin active, and macerate and remove the scales. In others, particularly the very busy, and those who will neither take time for plenty of exercise nor remain sufficiently long in a bath, one or more patches may be selected and covered with oil packing during leisure hours, while engaged in reading, smoking, writing, or some quiet social enjoyment. Thus, night after night, scales may be softened and removed from the various patches in succession in this manner.

The greatest difficulty the physician experiences is in making the patients fully comprehend the importance of remaining in the bath until the scales become thoroughly macerated and easily removed.

The baths of certain watering-places, both in this country and in Europe, have unjustly gained at times a reputation for curing this affection. The waters of any of these resorts have no chemical ingredient in them which exercises a specific effect upon psoriasis. Their successful use, in some instances, is due entirely to the rules requiring a low diet, a long walk to and from the spring, with copious and frequent draughts of the water, all of which promote profuse diaphoresis, followed by exfoliation of the scales, aided, even more, by frequent and long-continued bathing. The disappearance of the eruption under such circumstances is ascribed to the marvelous properties of the water. So the sufferer repairs, as often as the eruption appears, to this or that great Mecca for relief, while like rigid rules observed at home would bring about the same result.

The scales can also be removed by friction with sand, as suggested by Ellinger, or with green soap, as recommended by Hebra and Kaposi. The soap is to be well rubbed into each patch until the blood is seen to ooze from the base, the same operation being repeated for six or eight consecutive days. During this period the patient is kept lying in a blanket impregnated with soap. Under this process the patches assume a brownish color, and, in three or four days afterward, while yet in the blanket, the bed or body linen not being changed, extensive desquamation takes place, the whole cuticle peeling off in large lamellæ. A general bath which follows thoroughly cleanses the surface. The green soap is frequently applied, without using the blanket, or rubbing it in in the manner given. It may be applied with the aid of water, or in the form of Hebra's spirit of green soap. I have, upon a number of occasions, thoroughly tested this method. It is effective in cleansing the patches, but the suffering is so intense that I depend entirely upon the means I have advised as being sufficient to bring about the same result, without suffering. The milder methods of treatment I believe to be the most efficacious, particularly with Americans.

After the patches have been freed from scales, the next step is to apply a remedy which will have a curative action upon the vascular integument. Among the preparations used for this purpose are tar, carbolic acid, creasote, naphthalin, and beta naphthol; also thymol, turpentine, Vleminck's solution of sulphuret of calcium, Rochard's and Wilkinson's ointments, the mercurials in ointment form, pyrogallic acid, and chrysarobin, or chrysophanic acid. Tar can be used either as pix liquida, the oleum fagi, the ol. cadini, ol. rusci, and the ol. ligni fossilis empyreumaticum. They may be incorporated with lard, suet, lanolin, or one of the ordinary ointments in the proportion of from one to four drachms to the ounce. They may also be combined with soda or potash soap, with glycerine, with the various oils, such as olive and cod-liver oils, and with alcohol and the tincture of green soap. Wilkinson's ointment, as modified by Hebra, is composed as follows:

℞ Sulphur sublimatti,
Ol. cadini .... āā ℥ ss.
Saponis viridis,
Adipis.......................... āā ℥ j.
Cretæ præparatæ................... ʒ ijss.
M. Ft. ung.

Another mixture proposed by Hebra, consisting of equal parts of pix liquida, alcohol, and sapo viridis, has been tried and highly recommended. Anderson's tinctura saponis viridis cum pice, Guyot's solution of tar, Bulkley's liquor picis alkalinus, and the liquor carbonis detergens, are useful and effective applications. All tarry preparations, however, are more or less objectionable, especially in private practice, by reason of their disagreeable smell, the dark color that they impart to the skin, and the unpleasant and even toxic effects which sometimes result from their local use. The penetrating odor and darkening of the skin, as well as the clothes, is sometimes so great that it is often out of the question to prevail upon some patients to continue their use. They will state that they can usually hide the disease, but the disagreeable odor of the tar attracts universal attention. Further, the local application of tar is occasionally followed by an increase of temperature of the parts, with swelling, tension, pain, redness, papules, vesicles, and every symptom of dermatitis. Again, it may be well borne at first; but headache, fever, nausea, dark-colored urine and fæces, and other unpleasant evidences of its absorption into the circulation develop, and compel its use to be suspended.

Carbolic acid and creasote, while neither as active nor effective as tar, have been successfully used both in the form of lotions and ointments. Napthalin, a white, crystallizable product of tar, is at times used as a substitute for the latter, possessed, it is claimed by some, of all its advantages, and devoid of its black color and disagreeable smell. Beta naphthol, another product obtained by distillation of tar, and introduced to the profession by Kaposi, is a gray, granular substance, very pungent, which can be combined with either alcohol or simple ointment in the proportion of one or more drachms to the ounce. Its odor is more acceptable than that of tar, and, while it will not stain as the latter, its local action is equally as effective. Thymol, being a colorless preparation without a disagreeable odor, has been suggested as a substitute for tar by Crocker, in the strength of from five to thirty grains to the ounce of ordinary ointment. Turpentine, either alone or mixed with olive-oil, can be applied with good result; great care, however, must be exercised in using it to avoid strangury. The solution of sulphuret of calcium, first used by Vleminck, of the Belgian army medical service, has been found useful. The formula is:

℞	Calcis	℥ ss.
	Sulphuris sublimati	℥ j.
	Aquæ	f℥ x.

Coque ad ℥ vj, deinde filtra.

This compound is a dark orange-yellow fluid, and is slightly caustic. It should be freely rubbed into each patch with a brush or flannel until the surface bleeds, then reapplied and allowed to dry, after which a warm bath is given in which the subject is allowed to remain about an hour, followed by washing the surface again with either cold or warm water. After this procedure the surface is anointed with a bland ointment. Rochard's ointment is also an effective local application. Its formula is:

℞	Iodinii	gr. xi.
	Hydrargyri chloridi mitis	ʒ ss.
	Ungt.	℥ j ʒ vj.
M.	Ft. ung.	

It should be applied to the patches once or twice daily until vesicles are formed.

Although Vleminck's solution and Rochard's ointment are efficacious, especially in inveterate cases, nevertheless, the intense suffering which they produce makes them even more objectionable than the green soap and sand methods of Ellinger, Hebra, and Kaposi. In cases presenting obstinate patches, the dermal curette can be used in conjunction with the remedies already mentioned. Acetic acid and cantharidal solutions have also been suggested, but the mercurial ointments have, in my experience, yielded the best results.

The biniodide, the ammoniated chloride, and the protiodide can be prescribed in from two grains to the drachm to the ounce of lard or simple ointment, with decided advantage. Great care, however, should always be exercised in using the biniodide, as in large quantity it may cause severe irritation of the skin. The nitrate and oleate of mercury are the best and most effective of the other mercurials. I usually dilute the officinal ointment of the nitrate or oleate of mercury with one half or two thirds of lard or butter, and add to it in private practice a half to a drachm of either naphthol or chrysarobin. In hospital service I generally order the nitrate of mercury ointment in conjunction with the ordinary tar. If one or more patches are selected and treated with any of the mercurials at one time, care being taken not to cover too much surface, no constitutional effects can possibly be experienced.

The most valuable of all local remedies in the treatment of psoriasis are chrysarobin and pyrogallic acid. Chrysarobin was first introduced to the profession by Balmanno Squire,* of London, and has been highly commended by the best dermatologists in the world. It should be incorporated in lard, while hot, with the addition of a little benzole to increase its solubility. It can be prescribed in the strength of from fifteen grains to two drachms to the ounce of lard. It is best to learn its special action on each individual by beginning with a weak ointment of about fifteen or twenty grains to the ounce and gradually increasing its strength. It should be handled with great care and applied, if possible, under the direction of one familiar with it. If given to those who can not comprehend the necessity of care in its employment, and who will daub it over the surface in an indiscriminate manner, general cutaneous irritation will undoubtedly follow. If applied judiciously and carefully night and morning, the affected patches lose their scales and undue morbid thickness; they are transformed into a polished smooth surface, which becomes white like the normal skin. The skin around the patches is stained a dullish-brown color, and slightly desquamates under the stimulus of the drug. Unless the parts are well covered with old muslin or a bandage, which I always insist upon, the linen will be stained a brownish yellow.

The ointment should be well rubbed in, great care being exercised to prevent it from running off on the surrounding skin. It should not, if possible, be brought in contact with the hair, which it will dye a purplish color; neither should it touch the nails, which will also be stained. Patients should always be instructed not to put their hands near the eyes, if they have handled the drug or the hands have been in contact with the diseased surface after the application. Fox, of New York, has suggested an excellent method of applying chrysarobin by making a paste by the addition of water to it and smearing the same upon the patches after the scales have been removed, allowing the mixture to harden, after which collodion is penciled over the surface. The drug is thus kept in contact with the diseased patches and is also prevented from involving the surrounding skin or staining the linen. Another plan, also suggested by him, is to dissolve the chrysarobin first in a little alcohol and ether, and then add the collodion. Even with the greatest care, in those who have a sensitive or irritable skin, chrysarobin will set up an intense dermatitis, characterized by heat, swelling, itching, and pain, or an erythematous and furuncular inflammation, attended with a brownish, prune-juice discoloration of the skin. It is even stated by some that violent systemic effects of the drug are at times developed by its local use. That it is absorbed by the skin and can be detected in the urine, causing albuminuria during its application, has been demonstrated by Israel (Virchow, Archiv IV). I believe, however, that any injurious effect which may supervene is largely due to a lack of judgment in its application. If the drug is used in an indiscriminate manner upon all subjects, whether children or adults, and without regard to the condition of the skin, whether sensitive or not, bad effects must necessarily follow an abuse of so powerful an agent. In limited spots of psoriasis, the most effective way of applying the drug upon the surface is in the form of chrysarobin plaster. The parts are protected, and inflammation rarely follows.

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* British Medical Journal, November, 1876. "The Treatment of Psoriasis by an Ointment of Chrysophanic Acid," London, 1878.

Pyrogallic acid, likewise a valuable remedy, was used for the first time in psoriasis by Järich.* It is less active than chrysarobin, painless, and will not give rise to inflammation of the surrounding skin, but will produce a brownish stain upon the surface, whether diseased or healthy, with which it comes in contact. It will stain the hair, nails, and linen, but not to the same extent. It can be incorporated in lard in the strength of from five grains to two drachms to the ounce. As this agent will not produce the inflammation caused by chrysarobin, it is especially valuable in psoriasis of the head and face. Care should be exercised, in using pyrogallic acid, not to cover too much of the surface at any one time, as absorption may take place, giving rise to fever, strangury, and black evacuations. Besnier reports four cases of poisoning under the care of Neisser, Pick, Vidal, and himself, from the external application of pyrogallic acid, two of which were fatal. The prominent symptom in all of them was hæmaturia or hæmoglobinuria.

Prognosis.—Psoriasis is very difficult to cure, especially when it is of long standing. Relapses vary in different individuals; thus it may recur after a month or months, or after a period of years. It may disappear under appropriate treatment, to reappear within a few days, or it may be kept partially under control, the patient never being entirely free from some traces of the eruption. In some of the most inveterate cases, however, even where the whole surface is involved, the morbid changes in the skin have been at times completely and permanently removed by a long course of treatment. The mild form of the disease, particularly if seen upon its appearance, is more amenable to treatment. To sum up, psoriasis is one of the most obstinate and unyielding inflammatory affections of the skin.

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* Ann. de Derm. et de Syph., December, 1882.

LICHEN RUBER.

Lichen ruber is a non-inflammatory affection of the skin, characterized by the development of a number of small, firm, red papules which do not increase in size, but manifest a tendency to become chronic. They frequently involve the entire cutaneous surface, and are accompanied by more or less itching and constitutional irritation, and in some cases appear to be the initial manifestation of general debility, mal-assimilation, and death.

Symptoms.—There are no prodromal symptoms, as a rule. The onset of the disease is announced by the appearance of the eruption, which consists at first of numerous isolated, bright-red, or reddish-brown papules, varying in size from a mustard-seed to a small pea. Each papule is conical in shape, firm to the touch, and presents a scaly appearance at the apex. They remain unchanged in size throughout the entire course of the disease, except when large, reddish patches are formed by the coalescence of adjacent papules. The eruption may develop upon any portion of the body, but it usually appears first upon the extremities, and in severe cases becomes diffused over the entire surface. The eruption always remains papular, but in rare cases it is accompanied by vesicles and small bullæ. More or less itching is always present. In mild cases resolution occurs either spontaneously or as a result of treatment, and the lesions disappear without any appreciable desquamation or pigmentation. In severe cases, fresh papules develop upon other regions of the body, until, finally, the entire surface is covered by them and presents a uniformly reddened, infiltrated, and furfuraceous appearance. As the morbid process continues, the infiltration of the skin becomes so great in some cases as to interfere with its natural flexibility, and painful fissures are formed near the joints and folds of the body. The skin of the face and neck is fissured, brittle, and scaly, the eyelids droop, and the lips are thickened and indurated. The skin of the palms and soles becomes thickened and infiltrated, so that painful rhagades are formed and walking is productive of intense suffering. The hairs and nails becomes brittle and thin, and finally fall out. The itching is frequently almost unendurable.

The general nutrition of the body is not affected in mild cases, but, when the eruption extends over a considerable portion of the cutaneous surface and obstinately defies treatment, the functions of digestion and assimilation are seriously impaired. The appetite fails, sleep is obtained with difficulty, and the patient progressively emaciates, until death results from general marasmus, or from some intercurrent disease induced by the gradual failure of nutrition. Years may elapse, however, before a fatal termination occurs.

Diagnosis.—Mild cases of lichen ruber might be mistaken for acne, papular eczema, psoriasis, papular syphilis, lichen planus, and pityriasis rubra. The papules of acne, however, usually appear first upon the face, and are large in size, and frequently become pustular, and are not accompanied by itching. The papules of lichen ruber are small in size, are usually developed first upon the extremities, and neither increase in size nor become pustular, and are attended by a variable amount of itching. In papular eczema the papules are very numerous, and limited, as a rule, to one region of the surface. They are accompanied by intense itching, and pursue a rapid course, either disappearing, or becoming vesicular in a short time. In psoriasis, the lesions rapidly increase in diameter and are covered by large white or mother-of-pearl scales, which, when detached, expose a bleeding or excoriated surface beneath. In papular syphilis the papules also increase in diameter and frequently become pustular, and are not attended by any subjective symptoms. The papules of lichen planus are larger in size than those of lichen ruber, and usually present a depressed or umbilicated appearance. They disappear by resolution, but more or less pigmentation and atrophy of the epidermis result. The hair and nails do not become affected.

Severe cases of lichen ruber might be confounded with pityriasis rubra. In pityriasis, however, there are no papules, the skin is not thickened or infiltrated, and itching is either absent or comparatively slight.

Pathology.—All the layers of the skin are affected in lichen ruber, but the epidermis is the seat of the principal changes. If a papule be excised, and a vertical section made, the stratum corneum will be observed to be greatly thickened from an increase in the number and size of the epidermic cells and scales. The stratum mucosum is also thicker than normal and irregular in outline. The stratum lucidum and stratum granulosum appear indistinct in consequence of an imperfect transformation or development of their cells. Many of the cells of the corneous layer contain nuclei. The papillæ of the corium are thickened, and appear to be elongated in consequence of the projection of the inter-papillary processes of the rete. The blood-vessels of the corium are somewhat dilated, but there is no exudation of serum, and few or no white corpuscles can be observed. The subcutaneous connective tissue presents nothing abnormal, except that some of the blood-vessels appear to be slightly dilated, and a few leucocytes can be seen in the lymph-spaces. The sudoriparous and sebaceous glands are unaffected, with the exception of the upper portion of their ducts, which passes through the stratum corneum and participates in the overgrowth of that layer. The upper portion of the hair-follicles is similarly increased in thickness. The unstriped muscles of the corium are slightly hypertrophied. As the morbid process continues, the pressure of the corneous layer frequently obliterates or lessens the calibre of the minute vessels of the papillary layer, so that the nutritive supply of the rete mucosum and the superficial portion of the corium is lessened or cut off entirely. Retrograde changes then ensue, terminating in death of the rete mucosum, exfoliation of the stratum corneum, and destruction of a portion of the corium.

It is probable that the peripheral nerves are profoundly involved in lichen ruber, but the exact nature of the changes which occur have not been determined.

Etiology.—The etiology of lichen ruber is unknown. The most plausible theory is that which attributes its production to a reflex disturbance of the cutaneous branches of the trophic nervous system. It may occur at any age, but is most frequently met with between the thirtieth and the fiftieth year. It may develop in either sex, and in the debilitated as well as in the apparently healthy. It is of rare occurrence in the United States, but is not unfrequently observed in Germany.

Treatment.—The treatment which promises the best results consists in the early and persistent administration of tonic and alterative medicines. Iron, quinine, and cod-liver oil will be found serviceable in all cases. Benefit can also be derived from the use of the chalybeate mineral waters. The most valuable remedy, however, and one which experience has shown to be almost a specific, if administered during the early stages of the disease, is arsenic. It should be given continuously and in gradually increasing doses until some effect is produced upon the eruption, or until the point of toleration is reached. The dose should then be lessened, or its administration suspended for a short time, and then resumed until the eruption has entirely disappeared. It may be given in the form of solution of arsenite of potassium, commencing with five-minim doses and gradually increasing until twenty minims or more are taken after each meal, or from three to six of the well-known Asiatic pills may be administered daily. If arsenic is not well borne by the stomach, much benefit can be obtained from its hypodermic administration. Kobner, who originally employed arsenic in this manner in lichen ruber, commences with one to two minims of solution of arsenite of potassium, diluted with an equal quantity of water, and gradually increases the dose.

Attention must be paid to the general health. The diet should be nourishing, and consist principally of meat, milk, and fruit. The bowels should be kept in a soluble condition, and any derangement in the functions of the other organs of excretion and elimination must be promptly remedied.

Locally, the best results can be obtained in the early stages of the disease from the use of Unna's carbo-sublimate-zinc ointment. This preparation consists of corrosive sublimate, one grain; carbolic acid, twenty grains; and ordinary oxide-of-zinc ointment, one ounce. It will also be found valuable as an anti-pruritic in the advanced stages. Carbolic-acid lotion, composed of carbolic acid, one drachm; alcohol, two drachms; and water, one pint, may also be used to allay the itching, which is sometimes severe.

Prognosis.—If treatment is begun early and perseveringly continued, a favorable result will probably be obtained, but a guarded prognosis should always be given. Many cases terminate fatally in spite of all efforts, and cases which have existed for several months before remedial measures are instituted, usually pursue an unfavorable course. The prognosis is influenced also by the extent of the eruption. Patients on whom the lesions are few in number and localized, are more amenable to treatment than those in which they are numerous, and diffused over the entire surface.

VERRUCA.

SYNONYMS.—Wart—Warze—Verrue.

Verruca consists of hypertrophy of one or more of the cutaneous papillæ, forming round, flat, pointed or irregular, soft or hard circumscribed elevations, which are variable in shape and size.

Symptoms.—Warts may be congenital or acquired. They appear in many different forms, depending upon their situation and exciting cause. They may be sessile or pedunculated; round, flat, pointed, or irregular in appearance. Their surface may be smooth, or roughened and fissured. They vary in color, size, and consistence. They develop at all ages, but are more frequent in children and old persons. Their growth may be slow or rapid, persisting for years, or disappearing spontaneously after a short or long duration. They may be single or multiple. They appear upon all parts of the body, but are most commonly observed on the hands, face, scalp, neck, genitals, and feet. There are several varieties which may be described as follows:

VERRUCA VULGARIS.—This is the ordinary variety. They occur most frequently on the hands, especially the fingers, but may also appear upon other regions. They are small, circumscribed growths, attached to the skin by a broad base, and are from a pin's head to a pea in size. Their surface may be smooth, roughened, fissured, or lobulated. Their color is usually similar to that of the adjacent normal skin, but they may be grayish, yellowish, brownish, or blackish, these various shades being due to irritation or to dirt. They may be soft, or firm, or even hard and horny. They are insensitive, except when irritated; they then may become painful. They generally appear in crops or groups, but may be single.

VERRUCA PLANA (VERRUCA SENILIS).—Warts of this variety are flat, and generally round and broad. They vary in size from a small pea to a five-cent piece, and are only slightly raised above the level of the skin. They are soft or greasy to the touch, smooth or slightly roughened, and grayish, yellowish, brownish, or blackish in color. They are usually met with on the back and face of elderly people, and may be either single or multiple.

VERRUCA DIGITATA.—This variety of wart is commonly met with on the scalp. It is also flat and broad, but is studded with finger-like projections which give it a crab-like appearance.

VERRUCA FILIFORMIS.—Filiform warts are commonly observed on the face, eyelids, and neck. They are small, fine, thread-like elevations, of about an eighth of an inch in length, existing mostly separately, but occasionally occurring in groups.

VERRUCA ACUMINATA.—The venereal wart, pointed wart, moist wart, fig-wart, cauliflower excrescence, verruca elevata, spitzen condylom, *végétation dermique.* This variety of wart consists of one or a number of pointed, club-shaped, or irregular mulberry- or cauliflower-like elevations situated upon the genitalia and adjoining regions. They may be sessile or pedunculated, and single or multiple, at times forming more or less solid masses of vegetation. In the male they appear most commonly on the penis, cropping out from the glans, the sulcus, and the inner surface of the prepuce; in the female, they are an outgrowth from the inner surface of the labia, or from the vagina. They are also met with on the perinæum, anus, mouth, axillæ, umbilicus, toes, and other portions of the body. They vary in color from pale to blood-red, or even purple, the tint depending upon the region involved, its vascularity, and the condition of the epidermis. When their surface is dry and the epidermis is preserved, they present the normal color of the skin. On the other hand, when, from hyper-secretion or friction, the epidermis is macerated, they assume a bright or deep red color. In the latter event, their surface is covered with yellowish, decomposing pus, and occasionally crusts, from which a most unpleasant or offensive odor emanates. They grow luxuriantly, sometimes becoming as large as or larger than the fist. They may remain for an indefinite time. They assume various appearances in different regions, according to the manner in which they are arranged, and have, accordingly, been compared by writers to cauliflowers, mulberries, raspberries, bunches of grapes, and cockscombs. They occur in both sexes and at all ages, but are of more common occurrence in young persons.

Pathology.—Anatomically, the various forms of warts differ to some extent, but all have a connective-tissue base, from which papillary excrescences spring up. In the ordinary wart one or more papillæ become greatly enlarged, and are supplied with dilated vascular loops, and covered with more or less hypertrophied epidermis. The filiform wart consists essentially of connective tissue containing a minute capillary. In condylomata or venereal warts the papillæ are greatly hypertrophied, but the horny layer is usually absent or macerated.

Etiology.—Warts may develop without any apparent cause, or they may depend upon constitutional impairment or local irritation; want of cleanliness, contact with various substances, pressure, friction, and exposure to cold or heat, may be mentioned as conditions which produce them. Condylomata or venereal warts—which are never a manifestation of constitutional syphilis, and should not be confounded with the vegetating syphiloderm—are caused by the irritation of the secretions of gonorrhœa and leucorrhœa.

Treatment.—It is occasionally advisable, in treating warts, to give remedies which will have a tonic action upon the system, such as iron, cod-liver oil, bitter tonics, and arsenic, the latter being particularly recommended by McCall Anderson. Constitutional treatment is especially necessary in weak, anæmic, or scrofulous children who are afflicted with large crops of papillary excrescences. Locally, warts may be removed by excision, scraping, caustics, electricity, compression, and various medicated substances. The common and filiform wart is best cut out with a knife or curved scissors, and the base touched with a stick of nitrate of silver or chloride of zinc, or the parts drawn together with sutures. The application of compression with a band or bandage, when a large surface is involved, is effective. Electricity, either in the form of the static or galvanic variety, by discharging the spark into the growth, has also been found useful. The tincture of the chloride of iron, or salicylic or boracic acid, in solution, ointment, or plaster form, is also valuable. Carbolic and chromic acids and the mineral acids are efficient; but, in using them, the surrounding skin should be protected by a circle of wax. Unna* employed with success a combination containing ten grains of arsenic and five grains of corrosive sublimate to the ounce. This preparation was applied on gauze, and kept on night and day for two weeks, at the end of which time all the warts had disappeared. The flat wart can be removed by excision, or with the dermal curette or scraping-spoon. The latter is the most effective in warts occurring in the old—afterward applying a weak solution of the chloride of zinc to the surface, or an ointment containing five to ten grains of arsenic oleate to the ounce. Venereal warts, particularly if very vascular, are most successfully removed by the ligature, or by the galvano-caustic wire. The ligature of one or two will sometimes cause a group to rapidly disappear. The application of equal parts of powdered zinc oleate and bismuth subnitrate, or calomel, alone or combined with boracic acid, or lycopodium, or salicylic acid, or powdered red cinchona-bark, will often cause them to vanish, leaving the skin normal. Cleanliness is always essential, and in many cases will be the only treatment required.

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* Monatsschrift f. pract. Dermat., 3, 1882.

Prognosis.—Warts are benign in childhood, and sometimes during adult age, but, in the latter period, and in elderly people, they may, especially if picked or irritated, become the focus of malignant epithelial degeneration. If attended to in time, they can generally be eradicated. Occasionally, they are so extensive as not to permit of any interference. It is advisable, when they are large or vascular, to remove only a portion at a time, in order to avoid hæmorrhage and subsequent inflammation.

PAPILLOMA.—An inflammatory formation or tumor, similar to verruca acuminata, has been described under this term by Duhring, Hyde, and others.

ICHTHYOSIS.

SYNONYMS.—Xeroderma—Ichthyoides—Ichthyosis—Ichthyosis congenita—Porcupine-disease—Fish-skin disease—Fischschuppenausschlag—Ichthyose.

Ichthyosis is an hereditary or congenital hypertrophic disease, characterized by a general or local dryness, harshness, and scaliness of the epidermis, with sometimes an outgrowth of the papillary layer of the skin.

Symptoms.—Ichthyosis usually appears over the entire surface of the skin, but it may affect only certain areas. It may be mild or severe. If mild, it is denominated ichthyosis simplex; if severe, ichthyosis hystrix. The distinction between the two is merely one of degree. The disease may be so slight as to be scarcely noticeable, or occasion the least trouble; or, by the change or deformity that may follow from its development, may cause great anxiety and annoyance. While but two forms are usually met with, still there is a third called ichthyosis congenita.

ICHTHYOSIS CONGENITA.—This form of ichthyosis, which is rarely seen, begins in intra-uterine life. The child is generally born before the usual period of gestation; it is small, weak, and imperfectly formed; the eyelids, ears, and lips may be wanting; the skin is inelastic, mapped out in furrows, split, and fissured, the fingers and toes being shortened and bent. Should the child be living at birth, it usually dies a few days after. Jahr has recorded a case which lived nine days.

ICHTHYOSIS SIMPLEX.—This is the mildest form of the disease, and is the one generally encountered. It has been designated xeroderma (dry skin). The hypertrophy appears to be confined to the epidermis. The entire surface is not only dry, but also harsh, wrinkled, and poorly nourished, instead of being soft, smooth, and pliable. As a consequence, the integument has an unnatural, often a parchment-like, appearance. There seems to be less subcutaneous fat, and the natural lines and furrows stand out more than in the normal condition, and are attended with more or less scaliness. The scales vary in size, some being small, thin, and furfuraceous; others large, thick, and in the form of plates, like those of a fish. The furfuraceous or bran-like scales are usually seen on the head, and the larger ones on the extremities. In shape they correspond to the natural lines and furrows of the part on which they occur. They form on the extremities polygonal or diamond-shaped plates, separated from each other by lines or furrows. They are usually firmly attached in the centre, loosely at the periphery, and have a white or farinaceous appearance; or, if thick and well developed, assume a shade ranging from dirty, grayish-white to yellowish-green, brown, or even black. These different hues are due to dirt and other extraneous matter, as well as to the presence of pigment-granules. The extent and amount of the scales depend upon the character and duration of the disease, the age of the patient, and the attention given to bathing and other external means of treatment.

Ichthyosis Hystrix.—This severe variety is but an exaggeration or a higher development of the milder form of the disease. The line of demarcation may be very slight or well marked. It may occur in localized patches, or be distributed unequally over part or all of the surface; sometimes, however, it follows certain nerve-tracts. The part affected is the seat of irregular or polygonal masses of all tints of color, more commonly greenish and black, and between them the normal lines and furrows stand out distinctly. These masses can be picked off, exposing a dry and shrivelled skin, beneath which can be seen sebaceous ducts distended by plugs of sebum that have been left clinging to the detached plate. In some cases the patches present a rough, papillary, or warty growth, having a horny, pointed, round, or spinous appearance, the latter often being several lines in length and, from their resemblance to the quill of a porcupine, this form has been termed hystrix. They are usually situated around the elbows and the back, also the neck, the axillary region, the umbilicus, the knees, and the ankles. Here, as well as in ichthyosis simplex, the age of the patient, the duration of the attack, and the attention given to the removal of the masses, are factors in the severity and development of the disease.

Ichthyosis seldom manifests itself until a few months after birth, or about the second year. The child is generally born healthy, but gradually the roughness and dryness of the skin become visible. The disease first makes its appearance upon the surface of the limbs, especially the elbows and the adjoining parts of the arm and the forearm, the legs, and about the knees and ankles, and on these organs it is always most marked and virulent. If not confined to them, it spreads until it covers the whole surface. The disease usually manifests itself in the latter way, the entire surface having the appearance of being sprinkled over with meal—the thick, rough, and scaly condition being especially prominent on the extensor surfaces, the contrast being noticeable in comparison with the flexor surfaces, which are ordinarily free from incrustation. The scalp is rough and dry, and covered with furfuraceous or branny scales. The hair is also rough, dry, brittle, and lacks its peculiar lustre. On the face the skin may be mapped out in the form of plates, or the eyebrows and eyelids may be slightly scaly, but, as a rule, this region is seldom affected.

Ichthyotic persons are usually thin, and their skin is extremely sensitive to atmospheric changes. In severe weather, especially, the skin becomes tender, irritable, and frequently cracks. Sometimes there may be slight itching on exposure to the air, more marked on retiring at night. The skin is dry and wrinkled, the normal lines and furrows stand out prominently, and perspiration is generally slight; the extremities are usually cold; the nails poorly developed; the thickening of the epidermis is great, especially on the palmar and plantar surfaces. Again, there may be seen over portions of the body small polygonal plates, resembling those of the alligator. Dr. Fox has reported a case presenting this appearance.*

The disease is essentially chronic, lasting, perhaps, the lifetime of the afflicted person, but, singularly, never affecting the general health. In winter the disease is more severe and more marked than in summer. During the latter season and sometimes in the spring the increased activity of the sweat-glands so modifies the altered epidermis as to leave the skin for a while apparently normal; but a relapse occurs with the advent of cold weather. Cases are reported as having been cured after an attack of acute exanthemata.

Diagnosis.—The history of the disease, its congenital or hereditary nature, the dry, rough, scaly condition of the skin, and more or less hypertrophy of the papillæ, its distribution in certain regions, the dull-white appearance of the surface, and the absence of redness, are sufficient to distinguish ichthyosis from all other cutaneous diseases. Localized patches of old cases might, however, be confounded with seborrhœa. In the latter there is no evidence of an ill-nourished state of the skin, or papillary hypertrophy, as in the former, and the scales will be found to cover the dilated ducts of the sebaceous glands.

Pathology.—Ichthyosis will present different morbid conditions, in accordance with the severity of the disease. In a well-marked case, from which I made a section, the epidermis was enormously increased, and consisted of many heaped-up lamellæ. The mucous layer was somewhat hypertrophied, and slightly separated from the stratum corneum. The papillæ were enlarged and slightly infiltrated with cells.

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* "The Alligator Boy." A case of ichthyosis well illustrated. Journal of Cutaneous and Venereal Diseases, April, 1884, p. 97.

The blood-vessels were also enlarged, but the glands and follicles remained unchanged.

Neumann found, in addition to other hypertrophic changes, the vessels dilated, the cutis thickened, and its connective tissue condensed in bands ; the hair-follicles lengthened and containing lanugo ; an increase of the external root-sheath ; the glands dilated, particularly the sebaceous, which had a cyst-form ; and the subcutaneous fat diminished. In some typical cases the epidermis was in lamellæ, ranging in color from yellowish brown to dark brown, and the hair-follicles and sebaceous glands were absent. Kaposi has also reported a case in which the sebaceous and sweat glands were absent.

Etiology.—Ichthyosis is a congenital or hereditary disease, developing at an early period of life. It is found among all races and in all parts of the world. It occurs in both sexes, and can be transmitted from either father or mother, and it has even been traced to the grandparents. The parents of ichthyotic children are devoid of constitutional taint, and, with their offspring, always enjoy, excepting this deformity, the best of general health. In some large families, several children may be affected, while in other families, equally large, only one member will present the disease, the others being entirely free from it. When the disease makes its appearance, it gradually increases until adult age, when it reaches the height of its development, and continues with but little change for the remainder of life. Again, cases will occasionally be seen that can not be traced to either parents or grandparents, but may have arisen from some influence which affected the mother during pregnancy.

Treatment.—Of all the internal remedies recommended, but two make any impression upon the disease, namely, arsenic and the nutritive oils. The persistent employment of these agents will produce a beneficial effect on the integument, which is, however, by no means permanent.

Local Treatment is by far the most important and beneficial. Agents should be employed that have the power of softening and removing the accumulated epidermic masses and all extraneous matter, while, at the same time, exercising a beneficial influence upon the skin itself. Water is the best agent for this purpose, used either alone or in combination with soft or medicated soap, or in the form of a medicated bath, the alkaline being especially serviceable. At intervals, a hot-air or vapor bath, simple or medicated, should be employed. In severe cases, where the caking is marked, it is necessary to scrape off the masses with the curette or a knife, and to touch the parts afterward with a mild caustic solution. After the bath, and on rising in the morning and retiring at night, if convenient, an oily substance should be applied to protect the affected surface and aid its nutrition. Among the useful remedies to employ for this object may be mentioned the oil of ergot, the oil of corn, oil of sweet almonds, olive-oil, linseed and cod-liver oils, simple and benzoated ointment, suet, lanolin, glycerine diluted with rose-water, or one of the petroleum products. The following formula may be used with advantage:

℞ Olei ergotæ........................ f ℥ iij.
Ung. hydrarg. oleatis (10%).......... f ℥ j.
M. Sig.: Apply once or twice daily, especially after bathing.

The following ointment is also valuable:

℞ Acidi benzoici..................... gr. v.
Ung. aquæ rosæ...................... ℥ j.
Lanolin.............................. ℥ ss.
M. Ft. ungt.

Milton and Duhring recommend an ointment composed of potassium iodide, ten to twenty grains, and lard, one ounce.

Prognosis.—Ichthyosis is an incurable disease. Patients should always be apprised of this fact. They should likewise be informed that, by the use of the proper external treatment, the deformity can be lessened, but that no remedy or class of remedies has ever been known to cure the disease. It will continue throughout the life of the person affected, occasionally almost disappearing during warm weather, to again return during atmospheric changes or the winter months.

SCLERODERMA.

Synonyms.—Sclerema—Scleriasis—Scleroma adultorum—Chorionitis—Sclerostenosis—Cutis tensa chronica—Dermatosclerosis—Sclerosis corii—Hautsclerem—Sclérème des adultes.

Scleroderma is an acute or chronic affection, characterized by a diffuse or circumscribed, pigmented, indurated, rigid, and hide-bound condition of the skin.

Symptoms.—Scleroderma, first described by Alibert in 1817, and later by Thirial, commences as a rule without either constitutional or local disturbance; the first symptom to which the patient's attention is usually attracted being a slight stiffness or hardness of some portion of the skin. In some exceptional cases it may begin with chills, fever, swelling, and a feeling of numbness and formication or a pigmentation of the part. The rigidity which then sets in increases gradually in extent and severity, often requiring months or years, or more rarely rapidly spreading, until the affected part is more or less sclerosed. The morbid process may occur on any portion of the body, but it is most frequently observed on the upper and to a much less extent on the lower extremities. It may be diffused over all or the greater part of the surface, or be limited to one or more patches or streaks which bind down the skin, as, for example, across the mammæ. The skin of the affected part is thick, rigid, and hard. It has a feeling to the touch of *firmness*, tightness, and coldness, or, as Thirial states, very much like the skin of a frozen corpse. The sclerosed tissue passes insensibly into the normal skin, presenting no line of demarcation, but having at times a hyperæmic tract around it. The surface is swollen, moderately elevated or shrunken, smooth, shining, somewhat scaly, pale white in color, as if it were bleached, or like wax, brownish-red or pigmented in patches, with sometimes a slight or severe papillary hypertrophy similar to a local ichthyosis. The mucous membrane, particularly around the mouth and vagina, may likewise show a similar change. It is almost impossible to pick up a fold of the skin, as it is immovable on the underlying tissue, neither will pressure produce any depression of the part. In typical cases the various layers of the skin and muscles appear as if they had become united together, as well as to the bones beneath. The face, if affected, becomes altered in every way. The orifices of the eyes appear diminished in size, the alæ nasi stretched, and the mouth contracted. The skin no longer wrinkles, and the features become rigid and immovable like an inanimate object, failing in all respects to portray the impressions of the mind. If the morbid process extends to the neck, rotation of the head is interfered with or can only be made with difficulty. Again, if the integument of the chest or abdomen becomes sclerotic, respiration is sometimes impeded. Lastly, if the limbs be involved, they appear as if shortened ; the joints, especially those of the fingers and toes, become semi-flexed, and their motion impaired, frequently interfering with the occupation of the patient.

The surface temperature is either normal or slightly lower than in health. The secretory functions may be normal or excessive or diminished, the skin often feeling greasy or dry. The sensibility of the part may be quite normal, or, in some cases with the advance of the disease, slightly diminished. The subjective symptoms, after a time, become more and more annoying. The skin, which in the early stage was swollen, as the affection progresses, when atrophy takes place, becomes contracted and gives the sufferer a hide-bound feeling. Spontaneous neuralgic pains will sometimes appear which may only be temporary, and then be usually seated in the bones and joints rather than the affected tissue. Pressure upon the sclerosed patches is frequently painful. The general health, as a rule, continues good, but in some instances diseases of the lungs, heart, or kidneys may develop and terminate in amyloid degeneration and death. Eczema, acne, erysipelas, herpes zoster, variola, morphœa, and keloid may occur as complications.

Scleroderma may in rare cases disappear by involution, the hardness and discoloration of the surface fading, and the softness, elasticity, and natural color returning. This retrogression may occur only in spots, the disease at the same time spreading by the development of new patches upon another area. In other cases the affected surface sooner or later becomes the seat of atrophic degeneration. The integument becomes thin, smooth, soft, shining, often somewhat wrinkled, milky white, red, or irregularly pigmented and adherent to the bone. The immobility of the parts, with the disturbance of the circulation, leads to mortification, with ulceration of the skin. The disease may change from time to time, now becoming better, again worse, and so persist for years, the attending pain, loss of sleep, and disturbed nutrition leading to a fatal termination.

Diagnosis.—The diagnosis of scleroderma is not generally difficult; the cold, hard, callous, pigmented integument, which cannot be lifted in folds, is seen in no other affection. It sometimes manifests a resemblance to keloid, but the latter consists of one or more circumscribed, cicatricial, usually reddish elevations, more or less painful.

Scleroderma is liable to be confounded with morphœa, from which it may be differentiated as follows:

Scleroderma usually begins without any subjective symptoms, simply the stiffness or hardness appearing over large areas, as, for instance, the face or the neck or the trunk or all the surface. Morphœa begins by the development of a congestive reddish or purplish soft spot, of small area, and may be attended with pain or a tingling sensation. Scleroderma is generally symmetrical and rarely appears over definite nerve-tracts. Morphœa usually begins on one side of the body and follows the course of the large nerves. Scleroderma presents an illy-defined margin which passes insensibly into the healthy skin, while morphœa is sharply defined, with a surrounding purplish or lilac border. In scleroderma the integument is hard and immovable; in morphœa the skin is soft, can be raised in folds, is altered in structure and contains enlarged vessels and striæ atrophiæ. In scleroderma the skin appears to be irregularly pigmented; in morphœa it is usually a sombre yellow or ash color.

Finally, scleroderma increases slowly, is persistent, and causes inconvenience and pain by the contraction of the integument produced by it; morphœa, on the other hand, increases rapidly, but may disappear spontaneously, or, if not, produces little or no inconvenience, and contraction rarely supervenes.

Pathology.—The immediate pathological changes in the skin in scleroderma consist of an increase and condensation of the connective-tissue elements. The corium and subcutaneous tissue are the portions chiefly involved. The elastic fibres are increased, the fat-cells atrophied, and the thickened mass comes at once in contact with the bones. The vessels are numerous, but diminished in calibre by the pressure of the surrounding connective tissue. Cells accumulate in the perivascular lymph-spaces, around the vessels, and in the connective tissue of the part.

According to Kaposi, the pathological changes occurring in this disease are due to a thickening and stasis of lymph from an abnormal condition of the nutritive processes, the stagnation taking place in the lymph-spaces. The epidermis and the papillæ are primarily unaltered, but secondarily there may be an increased disposition of pigment in the rete, as well as in the upper layer of the corium.

Papillary hypertrophy may at times occur as well as hypertrophy of the muscular fibres and dilatation of the sweat-glands. The glands usually remain normal, except in the atrophic stage, when the new tissue decreases and mostly disappears, at which time they also undergo atrophy. Scleroderma, therefore, appears to be primarily a connective-tissue hypertrophy, probably arising from nervous disturbance, and ending in either resolution or atrophy.

Etiology.—The cause of scleroderma is involved in doubt. It is a very rare affection, but is seen at all periods of life. It is much more frequently met with among women than men, and the greater number of cases occur in middle age. Some observers (and Heller may be especially mentioned) believe a closure of the thoracic duct, or other lymphatics, and a stagnation of the lymph, to be the cause of the disease. This view, however, has not been confirmed by recent investigation. Schwimmer reports three cases in which the thoracic duct was entirely unchanged. Among the causes that have been referred to as exciting the disease are exposure to cold, rheumatism, and great nervous strain or shock. The nervous origin of the disease has been pointed out by Schwimmer, whose cases showed disease of the peripheral nerves; Westphal, also, who observed pathological changes in the brain; and by Eulenberg, who reported a case of progressive facial atrophy associated with scleroderma.

Treatment.—There is no treatment known at present which will cure scleroderma, but there are many means which will benefit it. Good hygiene, food and travel, together with iron, quinine, arsenic, cod-liver oil, or other tonics and alteratives will be advantageous. Locally, baths, massage, and stimulating ointments, the mercurial and iodine being especially valuable. Applications of mercurial potash soap (sapo viridis ℥ ss. and ungt. hydrarg. ℥ j) and the ointment of copper oleate, one half a drachm to the ounce of lard, are also of benefit. The constant galvanic current has been recommended by Piffard, Fieber, and others; Schwimmer suggesting, also, the galvanization of the sympathetic.

Prognosis.—The prognosis of scleroderma should always be carefully guarded, as the disease varies in course and termination. Recovery sometimes occurs through spontaneous involution, or the disease may continue during the entire life of the sufferer. A fatal termination may at times follow complication with some other disease. If the stage of atrophy has begun, the normal condition of the surface will not return.

SCLEREMA NEONATORUM.

SYNONYMS.—Scleroderma neonatorum—Induratio telæ cellulosæ neonatorum—Algor progressivus—Das Sclerem der Neugeborenen—Décrépitude infantile—Sclerema of the new-born.

Sclerema neonatorum is a disease of the new-born, occurring usually a few days after birth, and consisting of an induration of the cutaneous cellular tissue, generally of the lower extremities, and characterized by discoloration, œdematous swelling, coldness, and hardness of the affected part.

Symptoms.—The disease, which may be congenital, appears in new-born infants usually in from three to ten days, and rarely several months, after birth. At times the local symptoms are preceded by rapid malnutrition and wasting, with more or less restlessness. The morbid process is usually observed first upon the lower extremities, beginning on the calves and rapidly spreading upward to the thighs, abdomen, arms, neck, and face, frequently involving the entire body. In some cases, though rarely, it is said to attack the face or body first, and later extend to the extremities. The skin of the affected part appears tense and shining, and may be pallid, red, livid, or of a brownish or yellowish color. It may be more or less mottled, and the epidermis may be smooth, wrinkled, or fissured. The part is also swollen and œdematous, the surface cold, resistant, and indurated to the touch, incapable of being raised in folds, but pressure with the finger produces a depression in the skin. The œdematous swelling, however, is sometimes absent or hardly apparent; if present, it diminishes in a few days, but the parts remain cold, hard, and wrinkled. The temperature usually decreases and the pulse and respiration also fall in frequency, although cases have been reported in which the temperature was normal and the pulse increased in frequency. The affected parts become almost or entirely immovable. If the disease involves a greater part or all of the skin, the body presents the appearance of a corpse. The child remains motionless for hours or shows faint evidence of life by feeble movements of the unaffected parts. The pulse and respiration become almost imperceptible, the rigidity of the lips interferes with or renders feeding impossible, and the patient dies within a few days. Pneumonia, or other derangement of the respiratory or of the circulatory systems, or some intestinal or urinary disease, usually coexists with sclerema neonatorum.

Diagnosis.—There is no difficulty in recognizing the disease. The œdematous, cold, hard, characteristic colored skin, feeble circulation and respiration occurring in early infancy are sufficiently suggestive of the disease. The only affection with which it is liable to be confounded is œdema of the new-born, both diseases having the symptoms of falling of the temperature, pulse, respiration, and the rigidity of the body in common. Œdema of the new-born differs from sclerema neonatorum in being of longer duration, less fatal, the skin being movable over the underlying structures, the rigidity being slighter and the swelling more pronounced. The two diseases, according to Eustace Smith, may exist together, or sclerema neonatorum may succeed œdema, as reported by Perot.

Pathology.—The skin of children affected with sclerema neonatorum becomes more decided in color after death, often changing to a blue, but the hardness and rigidity remain. On cutting the integument, dark, bloody serum oozes out, followed by a yellowish fluid, the œdema, in the mean time, disappearing and the indurated tissue becoming soft.

Sclerema neonatorum is said to show no other important change apart from this œdematous infiltration, and a firm, stearin-like deposit in the subcutaneous tissue.

Etiology.—Sclerema neonatorum appears most frequently in children who are born prematurely, and occurs more often in winter than in summer. It may be caused by any constitutional or local condition which disturbs the respiration and circulation, such as pneumonia, bronchitis, heart-disease, syphilis, premature birth, hydrocephalus, meningeal apoplexy, malnutrition, and exposure to cold.

Treatment.—The treatment should be first directed to removing the cause; if this can be done, the disease may be cured. The most important part of the treatment consists in keeping up the nourishment of the child either with milk or a suitable substitute, together with a certain amount of stimulant, as good brandy or white wine with sugar. As the child cannot suckle or partake of sufficient nourishment, the food should be given through a tube. Forced feeding can be best carried out by passing an elastic catheter through the nose and into the stomach, through which liquid food can be given regularly, as recommended by Eustace Smith. It is equally important to keep up the temperature of the body by moderate friction and by warm applications to the surface.

Prognosis.—Sclerema neonatorum is usually a fatal disease, but recovery may ensue in mild cases.

MORPHŒA.*

Morphœa is a chronic disease of the skin, characterized by the appearance of one or more isolated points, lines, bands, or patches, which are primarily hyperæmic, sometimes slightly elevated, surrounded with a pink areola, and which later become level with the skin or slightly depressed, white or yellowish or pinkish, with a polished aspect.

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* Morphœa is held by some authorities to be a circumscribed form of scleroderma.

Symptoms.—This disease, which was known as Addison's keloid, presents a number of appearances, as it assumes one form or another, and according to its stage of development. It frequently begins by the appearance of one or more isolated, circumscribed rounded, ovalish, or elongated hyperæmic, pink, or violet patches, varying in size from a fraction of an inch to several inches in diameter. They may continue to enlarge, or several may coalesce until they become as large as a hand. After having become well defined and circumscribed, they are surrounded with a pink or violaceous areola composed of a network of vessels. At times bunches of these minute capillaries are also distributed over the surface. The affected skin in its early stage may be slightly swollen or elevated. At a later stage this condition disappears, and the patch becomes level with the surrounding skin or somewhat depressed. In color the patch is pink or purplish, yellowish or whitish. The surface is usually smooth and shining, appearing like polished ivory, wax, marble, or alabaster, and looking as if a substance like lard or bacon had been deposited in the skin. Tilbury Fox likewise observed the same change in the mucous membrane of the inside of the lips, and others have seen it in the surface of the pharynx. In old cases there may be more or less desquamation of the skin. The adjacent skin is apt to become yellow, brown, or mottled. To the touch a fully developed patch is generally firm, brawny, and inelastic, and can only be pinched up with difficulty. It is not uncommon to find on palpation little or no change of the skin ; the sensibility may be diminished, but, as a rule in the early stage, continues normal. In some cases the patches, having become fully developed, may remain in this condition indefinitely, or they may rapidly or slowly undergo spontaneous involution, the skin returning to its ordinary condition. In other instances, atrophic changes occur, the patches becoming contracted, dry, shrunken, parchment-like, and often bound down to the underlying parts. The glands are also generally atrophied, and their secretions are diminished or absent. After a time the subcutaneous and muscular tissues undergo atrophic alteration. Small or large, round, elongated, or irregularly shaped cicatriform lesions result, with more or less deformity and loss of power.

Morphœa may also appear in the form of groups or scattered, small, pit-like scars, intermingled with capillaries, and white, glazed maculæ and furrows developing the maculæ et striæ atrophiæ. In addition there may be present reddish or purplish telangiectasic with more or less yellowish or brownish pigmentation around the patches. These lesions may continue indefinitely or undergo spontaneous involution, or they may gradually assume the waxy, lardaceous condition already described.

Morphœa manifests no tendency to symmetry. The lesions may occur upon any part of the body, but appear by preference on the face, neck, chest, back, abdomen, arms, and thighs. They may be quite irregular in their distribution, or may, as is frequently the case, follow certain nerve-tracts, as, for instance, the fifth or the sciatic.

Subjective symptoms are apt to be absent, the lesions developing and persisting without any marked symptoms, although pain, tenderness, and a tingling have been known to precede and accompany the disease. It is a rare affection, chronic in its course, often continuing for years.

Diagnosis.—The diagnosis between scleroderma and morphæa is discussed under the former disease. The atrophic striæ, as observed in one form of morphœa, are with difficulty distinguished from the normal lineæ albicantes.

The anæsthetic spots of leprosy, which resemble those of morphœa, as well as many other phenomena common to each, point very strongly to the neurotic origin of both affections. The patches of leprosy, however, are not waxy white from the beginning of the disease, as they become very soon in morphœa; and, further, the other well-marked symptoms, which, in addition, occur in the former most serious affection, are all-sufficient to lead to a proper diagnosis.

The spots of vitiligo bear more or less resemblance to morphœa patches, but in vitiligo there is simply a diminution of the pigmentary matter of the rete Malpighii, with no textural change whatever, while in morphœa there is a structural alteration in the skin.

Pathology.—Microscopical investigations have thus far developed very little in reference to the pathology of morphœa. Crocker, who examined patches in the early stages, noted pigmentation of the deeper layers of the epidermis, atrophied papillæ, and a copious infiltration of cells around the glands and vessels. In the later stages these cells developed into fibrillar connective tissues, which shrank, followed by obliteration of blood-vessels and atrophy of the glands. Duhring, on the other hand, found, from an examination of a white patch of some months' standing, simply a condensation of the connective tissue of the corium, with a shrinkage of the papillary layer.

Etiology.—The cause of the disease is not positively known. Hutchinson believes it is neurotic in origin. Wilson, Tilbury Fox, Crocker, and others have pointed out its frequent occurrence along the course of distinct nerve-tracts, but it has also been observed remote from them. In confirmation of those who believe that the nervous system is at fault in producing morphœa may be mentioned its occurrence with such other neurotic affections as canities and alopecia circumscripta.

It occurs at all ages, and in the robust as well as in the weak, but is more frequently observed in women than in men.

Treatment.—The milder forms of morphœa, which are hid by the patient's clothing, generally require no attention. Such cases sometimes recover without any treatment. The more severe cases of the disease, especially if on the face or exposed portions of the body, call for both constitutional and local treatment. Iron, quinine, phosphorus, cod-liver oil, arsenic, and the chloride of gold and sodium are especially useful. Locally, massage, galvanism, mercurial potash soap, and mercurial lotions, singly or in combination, are of service.

Prognosis.—The course of the disease is usually chronic, continuing often for life. Spontaneous recovery may occur in a short time after its appearance. This is especially the case in the milder forms of the disease. If atrophy, however, has occurred, the skin cannot be restored to its natural condition.

HEMIATROPHIA FACIALIS.—In connection with morphœa it might be well to mention the disease known as hemiatrophia facialis, or unilateral atrophy of the face. This appears to be closely related to or is a variety of morphœa, but the morbid process is deeper seated than in the latter affection. It consists in atrophy, not only of the skin, but the subcutaneous cellular tissue, the muscles and sometimes even the bones of a portion or of all of one side of the face. Inasmuch as the lesions of morphœa have been observed in some of the cases of unilateral atrophy of the face, it is probable that both diseases are of the same nature.

ELEPHANTIASIS.

SYNONYMS.—Elephantiasis arabum—Pachydermia—Buenemia tropica—Spargosis—Morbus elephas—Elephant leg—Barbadoes leg.

Elephantiasis is a chronic hypertrophic disease of the skin and subcutaneous connective tissue, characterized by an increase in size of the affected part, accompanied by inflammation of the vessels and lymphatics, swelling, œdema, thickening, induration, more or less pigmentation, fissures, and warty growths.

Symptoms.—The disease generally manifests itself as an erythema, or an erysipelatous inflammation, or a dermatitis, accompanied by more or less severe constitutional symptoms. The skin is red, swollen, hot, and painful, and the entire affected region is somewhat enlarged. Relapses occur from time to time, without any assignable cause, as a result of which the part still further increases in size and becomes fissured, indurated and discolored, and covered with papillary excrescences giving it a most deformed appearance. It occurs on various portions of the body, attacking by preference the legs, feet, scrotum, penis, labia, and clitoris ; less frequently the anus and upper extremities are involved. Cases are also recorded in which the external ear, eyelids, nose, cheeks, and mammæ have been invaded. The symptoms will differ according to the part attacked. When the legs are involved, the disease is usually confined to one member, which, after repeated attacks, is enormously increased in size, especially from the knee to the ankle ; the foot, when involved, becoming a shapeless mass. The thickened and unwieldy limb presents a most distorted aspect. The cutis, which is tightly stretched, is united to the underlying tissues and pits on pressure. Pressure or deep manipulation develops a hard, resisting conglomerated tissue ; the separate structures, especially the muscles, cannot be distinguished from the mass. Enlarged lymphatics or the saphenous vein may be traced to the upper part of the thigh as hard, rigid bands. The skin may be either smooth, shining, pale, red, brown, or brownish-red, or rough and dark in appearance. Fissures, warty growths, tubercles, and often an eczematous condition occur on various parts of the limbs. The skin may here and there be deprived of epidermis, bleed and weep; or lymphatic vessels be opened up, causing lymphorrhœa; scales and crusts may follow from the poured-out material. Ulcers of various sizes may also develop, from which a sanious and offensive fluid oozes over the surface. Movement of the limbs is painful, and either greatly impeded or rendered almost impossible. More or less febrile disturbance accompanies each attack, and there may also be pricking, stabbing, or boring pain. The labia, clitoris, and scrotum, when affected, become enormously enlarged. The scrotum may extend to the knees or feet ; the penis contracts and is completely lost in the thickened mass. The skin becomes hard, rough, warty, and tuberculated ; the urine in being voided passes along a furrow formed in the hypertrophied skin ; fissures, excoriations, and ulcers are developed, or the lymphatic vessels are corroded and pour out their contents, producing a most obnoxious and offensive appearance and odor ; walking becomes impossible and the patient's very existence a burden.

Diagnosis.—In the early stages of the disease, and before the thickening and enlargement of the parts has set in, it is almost impossible to make the diagnosis. The recurrent attacks of inflammation of the part, especially when confined to one limb, point to the probable disease which may develop, and will be a valuable guide for the physician to carefully watch its course, note any increase in the size of the part. After the affected region has become hypertrophied, and covered by the primary and secondary lesions referred to, an error in diagnosis is almost impossible.

Pathology.—The diseased tissue is hard and resisting, and when cut through to the bone exhibits a homogeneous, white, yellowish, or lardaceous mass from which a yellowish-white fluid exudes spontaneously or from pressure. The various layers of the skin are matted together and can hardly be distinguished. The corium is thicker and more dense in structure, but the subcutaneous tissue is enormously hypertrophied. The fascia and intermuscular septa are thickened, exhibit evidences of fatty degeneration, and are changed in color, being generally pale or brownish-yellow; the bone is thickened, hardened, smooth or irregular, and covered with exostoses. According to Virchow, these exostoses may unite together the tibia and femur, the tibia and fibula, the ankle-joint or the metatarsal bones. Hauke has pointed out that, in the midst of the sclerosed portion of bone, there may be likewise carious or necrosed parts. Microscopic examination has demonstrated that while the epidermis and corium are altered in structure, they are only increased in thickness at points which are the seat of papillary and warty elevations. The papillæ in these regions are widened and elongated. The blood-vessels and lymphatics are enlarged; new connective tissue, formed of delicate fibres, with many nuclei and cells commingled, is also encountered. The glands and follicles may be found unaltered or widely separated, or, by the pressure of the hypertrophic mass, they, as well as the fat-cells, may be pushed aside, altered, or destroyed.

Etiology.—Elephantiasis arises from inflammation and prolonged obstruction of the lymphatics. It is said by Manson and others to be due to the presence of a minute insect, the *filaria sanguinis,* and its ova in the blood and lymphatics. This parasite has been shown, by microscopic examination, to be almost invariably present in subjects of the disease in countries where it is common, and Manson believes that the mosquito is instrumental in propagating and spreading the disease. Aside from all theories, elephantiasis may develop from any cause which occasions local obstruction of the circulation.* Dr. Vieira de Melo states in a valuable monograph on the subject that it is developed in consequence of successive attacks of lymphangeitis. This accounts, he further adds, for its comparative frequency in warm countries where the causes of external irritation are so numerous. It may arise from the irritation of varicose veins, chronic eczema, ulcers, lupus, and even fracture of the bones of the limb. Wounds and erysipelas are also among the more common causes of the affection. Elephantiasis is seen in all regions, but is more common in certain tropical countries. It is of frequent occurrence in the West Indies, especially the Barbadoes Islands, in Africa, Arabia, Egypt, China, Australia, and Japan, being more prevalent along the sea-coast of those countries. Climate will, therefore, be seen to favor the development of the disease to a certain extent. It occurs among both sexes, but is more frequent in the male. It seldom appears before puberty, but a case has been reported which began in the sixth year of age. It is neither contagious nor hereditary, but it is said to attack the poor, those who are broken down in health, or are subjected to great exposure.

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* Journal de Médecine de Paris, October 4, 1884.

Treatment.—If the disease is seen in its early stages it should be treated upon general principles. A change of climate is often advantageous. It is necessary that the patient have a nutritious diet. In reference to internal medication, iron and quinine have a good effect upon some, while either general tonics, arsenic, or one of the iodides benefit others. Rest of the affected part during the inflammatory attacks is all-important, and, if the extremities be involved, they should be placed in a horizontal or elevated position. Suitable lotions of either lead-water and opium, arnica or opodeldoc, hot, warm, or cold, can be applied until after the inflammatory action has subsided. Soothing or slightly astringent ointments can be substituted, if more grateful to the patient. After the disappearance of this stage of the disease, the alkaline, simple or medicated vapor-bath should be employed to remove all poured-out products and to soften up any thickening of the surface. Frictions can then be made with one of the mercurial or iodine ointments, together with the application of compression, which may diminish the pathological process or elephantoid swelling. In case the limbs are affected, compression can be made by a cotton or gum bandage. In the event that the part will not diminish rapidly, the entire surface may be punctured thoroughly with a small needle-knife from two to four times a week; the overdistended vessels are thus relieved, absorption assisted, and the hypertrophied extremity lessened in size. If eczema, warty growths, or ulcers are present, they can be treated according to the methods usually resorted to for these conditions. Electricity has yielded favorable results in the early stages of the disease. Ligation of the external iliac and femoral arteries has often been resorted to, with a decided improvement or cure in some cases, and a complete failure in others. Pyæmia sometimes follows the operation, but recent statistics show a number of permanent cures. Leonard has shown that in sixty-nine cases upon which arterial ligature was applied, forty recovered and thirteen were benefited. Weber recently reported an interesting case of complete recovery following ligation of the femoral artery. Digital and instrumental compression of the femoral artery have also been followed by a reduction in the size of the limb. Nerve-stretching and excision of the sciatic have also yielded good results. Morton, of this city, excised a portion of the sciatic in a patient having the disease fourteen years, in whom the external iliac had previously been ligated without any appreciable effect, and the result of the last procedure was to lessen the growth to one half its former size. The removal of the offending mass entire by the knife sometimes becomes necessary, especially when the genitals are involved. The amputation of a limb, which has been frequently performed, is not usually well borne by the patient.

Prognosis.—It will be evident, from what has been stated, that the prognosis of elephantiasis may be regarded as not unfavorable. If the disease is seen early its growth may be arrested, and the same result may be reached even in the later stage, by appropriate treatment or by operative procedure. It may persist throughout the patient's life, notwithstanding the best efforts, interfering with the movements and thus being a great burden and deformity. While it is at all times a dangerous disease and may have a fatal termination, yet the latter result rarely follows unless pyæmia supervenes.

DERMATOLYSIS.

SYNONYMS.—Elephantiasis telangiectodes—Cutis pendula—Pachydermatocele.

Dermatolysis is a more or less circumscribed hypertrophied condition of the skin and subcutaneous tissue, as the result of which it may hang in loose folds.

Symptoms.—This affection, which may be congenital or acquired, consists in an hypertrophy of all the structures of the skin. It may be so slight as to neither be noticeable nor occasion the least inconvenience, or it may be so severe as to be both cumbersome and a great deformity. In slight cases the skin may be apparently normal in appearance, but soft, sensitive, movable, extensible, and at times elastic to the touch. A case exhibited recently in this city showed this form of hypertrophy over almost the entire surface, especially marked on the head, trunk, and extremities. This individual was, to all appearances, healthy, and the skin was apparently normal. To the touch, however, it was soft, sensitive, but not painful, movable, extensible, and exceedingly elastic. It could, for instance, be easily drawn from between the scapula forward over the back of the head, and from the sternum up to almost cover the face. When the skin was drawn out and held before a light, the circulation in it was well portrayed.

In the more or less severe forms of this disease, the skin is thickened and tends to hang in rolls of various sizes, sometimes overlapping each other like the folds of a loose garment, or appearing like the skin on the necks of cows. These folds of skin are generally brownish or brownish-black in color, rugous, but smooth and soft to the touch, appearing as if a distended, spongy substance had been compressed. Bell related a remarkable case in which the skin hung down from the ears, neck, the trunk, and abdomen, the subject being compelled to carry the masses in a table-cloth. Wilson, Stokes, Mott, Keen, and Piffard have also reported cases attended with unusual deformity. This form of hypertrophy may involve the whole surface, but it has been observed more frequently on the scalp, back, abdomen, and thighs.

Pathology.—Dermatolysis is a hypertrophy of all the integument, more especially the subcutaneous tissue. The cause of the growth is unknown. It has been noted to be closely related to molluscum fibrosum, and at times occurs in connection with that disease.

Treatment.—Excision, when the disease is not too extensive, is the only method by which the mass can be removed, if this procedure is at all possible or necessitated by the inconvenience or suffering of the patient. The galvano-cautery is useful when the disease is limited to a small area.

Prognosis.—This is usually good. The deformity and inconvenience due to the growth are the only unpleasant effects that arise from the disease. Excision sometimes affords satisfactory results.

HYPERTROPHY OF THE HAIR.

SYNONYMS.—Hypertrichosis—Hypertrichiasis—Polytrichia—Trichauxis—Hirsuties.

Hypertrophy of the hair consists of an abnormal or excessive growth of the hair.

Symptoms.—Hypertrophy of the hair, which is an increase beyond its normal limits either in thickness or length, may take place in two different forms. First, upon regions provided with hairs of considerable length, as the head, face, eyebrows, axillæ, chest, and pubes. Cases of this form of inordinate growth, which may be hereditary or acquired, are frequently observed, many curious examples having been recorded by various writers of ancient and modern times. In these cases the hair grows both in quantity and to an unusual length, measuring, for instance, on the head of some women reported by Wilson six feet, and in Leonard's case whose beard attained over seven feet in twelve years' growth.

The second form is that in which an abnormal growth of the hair takes place either over the general surface or locally on certain areas where it exists normally only in a fine, downy condition. It may be either hereditary, congenital, or acquired. Thus, Ficinus has reported the case of a girl entirely covered with hair at birth. Wilson relates a case, not congenital, of an unmarried woman thirty-three years of age, in which the entire surface was covered with hair. Numerous cases of a similar growth are likewise recorded, Beigel, in particular, citing many—as the renowned dancer Negreui, whose hair, after recovery from an acute disease, increased over three yards in length; and the case of Julia Pastrana, who had both a fine beard and a hairy body. The case of Shwe-Maon, the hairy Burmese, and his children, reported many years ago, furnishes a remarkable instance of hairy development being both congenital and hereditary.

Certain races are also said to be noted for their excessive hairiness, as the Aïnos of Japan; but Von Krusenstern and Habersham, U. S. Navy, after investigation, declare the extreme hairiness of these people to be exaggerated. Abnormal growth of hair may occur in both sexes and at all times of life. When it occurs between the eyebrows, on the arms, and on the face of women, forming a mustache or beard, it occasions considerable disfigurement and great mental suffering. Hairs may sometimes in their growth take an abnormal direction within or without the follicle, especially upon the scalp, eyebrows, or eyelashes, often in the latter situation turning in toward the eyeball, producing the condition known as trichiasis. Hairs may also grow abnormally long and pigmented on smooth or warty mother's marks, when they are called respectively nævus pilosus and nævus verrucosus.

Etiology.—The causes which give rise to an abnormal growth of hair are unknown. It is observed more frequently in those having a dark rather than a light complexion. It is also known to often develop from sexual disorders in women at the climacteric period, and during and after various diseases. For example, I have witnessed its appearance after fevers. Cases have also been recorded of its occurrence in insane persons, those mentally disturbed, and on paralyzed parts in certain nervous diseases, and from nerve injury. Hypertrophy of the hair may likewise occur from any cause which determines more blood than usual to a part. It is in this way that local inflammation, continued friction to a region, or the application of any irritating substance—powders, lotions, liniments, or poultices—is, no doubt, frequently the cause of an abnormal growth of hair.

Treatment.—A general abnormal growth of hair can not be either relieved or removed. Small areas, which generally occur on nævi and the face of women, may be successfully destroyed or may be removed temporarily. The most rapid and radical means of eradicating the majority of circumscribed hairy growths is by the knife, the operation generally being slight, and, when properly performed, little or no sign of it remains on the skin.

The next best method is the removal of the superfluous hairs by electrolysis or a galvanic current, which was first contrived and recommended by Michel, and afterward successfully used by Hardaway, George Henry Fox, Piffard, and others. The apparatus needed for the operation is an ordinary galvanic battery* containing from six to fifteen cells, two electrodes, a sponge being on the positive and a fine platinum wire, or a thin cambric needle inserted in a small holder, which is attached to the negative electrode, a lens, and a pair of good broad-blade forceps. The patient is placed first in a strong light; the needle, which is connected with the negative pole, is carefully inserted into the follicle by the side of the hair as far as the base, and the circuit is completed either by the patient touching the positive pole, or by applying it near the seat of the operation. The needle is allowed to remain a few seconds; decomposition of the tissue follows, which will be shown by the appearance of minute bubbles or froth at the point of entrance. Care should now be exercised to avoid breaking the circuit as the needle is removed, and thus prevent a shock to the patient. Care should also be exercised in introducing the needle to avoid puncturing small vessels, as the bleeding which follows delays the operation and also leads to considerable swelling from the escape of blood into the tissue. If gentle traction after the operation removes the hair, the probability is that the papilla is destroyed, otherwise the needle should be reintroduced and the same process repeated. A certain amount of congestion, swelling, or a wheal, followed by a papule or pustule, may develop around the follicle. The time required for the destruction of each hair will vary according to the dexterity of the operator and the sensitiveness of the patient. In one sitting from ten to forty hairs may be removed; the operation is, however, very tedious, and extremely severe on the eyes of the physician, often necessitating the use of a lens. Further, the operation is not only trying to the physician, but it is also painful to the patient, especially when the upper lip or neck is involved, the pain extending along certain nerves, particularly the dental branches, causing the teeth to ache severely. The pain sometimes diminishes after repeated operations, as the parts become more tolerant to the action of the galvanic current. The large hairs should be removed first, and the operation repeated on the smaller ones. A simple water-dressing or the application of the benzoated oxide-of-zinc ointment will lessen within two or three days the congestion and swelling of the part.

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* Heitzman recommends the Leclanché battery, containing six large cells. He adds that the advantage of this battery is that it is painless; even the most sensitive person can bear it without inconvenience. Journal of Cutaneous and Venereal Diseases, November, 1885, New York.

An abnormal growth of hair may be removed temporarily by shaving, epilation, and the application of certain caustics to the affected surface. Shaving, however, merely cuts off the hairs on a level with the skin, and leaves the stumps showing as black points at the orifices of the follicles; the skin also becomes somewhat rough, and a certain disfigurement remains. This procedure for women will not, therefore, be advantageous. Epilation, with or without the insertion of red-hot needles or acid into the follicles, is not only very painful, but the hairs grow with renewed vigor and its constant repetition changes a smooth integument to a rough, discolored, and uneven surface.

Caustics or depilatories have been employed from ancient times for the removal of hairs. They usually have, as their main ingredient, either the sulphide of calcium, arsenic, sodium, or barium. One of these substances is made in the form of a paste with water and applied with a piece of wood or bone to the affected area and allowed to remain about ten minutes, when it becomes dry and is quickly scraped from the surface. The parts are then cleansed with water and anointed with cold cream or sweet-oil, and later the congestion may be still more concealed by dusting a mild powder, as carbonate of zinc or magnesium, on the skin. As the caustic paste or depilatory not only destroys the hairs on a level with the skin, but likewise partially within the follicles, and as no black points or hair-stumps remain, the operation is certainly superior to shaving. Again, shaving requires to be practised more frequently, usually every day or two, while it is only necessary to use a depilatory every three or four days. Sulphide of barium and oxide of zinc are recommended as forming an efficient depilatory, and may be combined as follows:

℞ Barii sulphidi .... ʒ iij.
Cretæ præparatæ,
Pulv. marantæ .... ʒ ij. M.

All depilatories should be employed with care, as their improper or prolonged use will set up inflammation and often produce greater disfigurement than the superfluous growth of hair.

While thus briefly giving an account of epilation and the use of depilatories for the removal of an abnormal growth of hair, because people will demand and physicians will often be compelled to supply or use them, I wish in this connection to condemn most decidedly the employment of either. They relieve only temporarily, and eventually increase the growth, rendering the skin red and rough, and frequently produce unsightly marks and scars. Excision and electrolysis are the best and only certain methods, under all circumstances, to practise.

HYPERTROPHY OF THE NAILS.

SYNONYMS.—Onychogryphosis—Onychauxis.

Hypertrophy of the nail consists of an abnormal increase of either its length or thickness.

Symptoms.—Hypertrophy of the nail may manifest itself by an increase in its substance either in length, width, or thickness, or all combined, and frequently with more or less secondary changes. It may, for example, grow unusually long, occasionally curving downward like a claw, or it may expand laterally, pressing into the tissue, developing inflammation, or what is known as in-growing of the nail or paronychia. It is more usual, in this latter condition, in which the internal angle of the great toe is involved, for the nail in front and lateral margins to curve inward. This form of hypertrophy frequently gives rise to irritation or inflammation of the adjoining soft parts, with pain that is often unbearable, swelling, suppuration, the formation of granulations, and occasionally leads to destruction of the tissue and necrosis of the bones, and, in rare cases, to a loss of the affected member, as the foot, or even to imperilling the life of the patient.

In other cases the nail may be thickened throughout, or in one or more parts, being more or less elevated from its bed, assuming the appearance of a cone or wedge, leading to great deformity, and often interfering with the movement of the limb except under great pain. In addition to these variations in size and shape, the upper and lower surfaces of the nail may be more or less changed. The upper surface may be uneven, furrowed, ridged, lustreless, and partially or entirely discolored ; being either streaked, opaque, white, yellow, yellowish-brown, or black. The under surface may be covered with epidermic scales, brittle, and dirty-brown in color. The consistency of the nail may likewise be somewhat changed, being either thicker or thinner, harder or softer, or tougher or more brittle, than normal. There are two other conditions of the nails which might be referred to here in which the nail-substance is structurally altered. The first is termed onychia or inflammation of the matrix, the syphilitic form being frequently attended with its characteristic lesions around the affected digit or in other parts of the body. The other has been named onychomycosis, and is due to the invasion of the nail-substance by vegetable parasites.

Hypertrophy of the nails may be either slight or marked, and may involve one or several or all at the same time.

Pathology.—The nail-substance which grows from the papillæ of the matrix becomes hypertrophied. On examination, the papillæ of the matrix, especially in severe and chronic cases, are found enlarged, with more or less hypertrophy of the entire nail-bed.

Etiology.—Hypertrophy of the nails may arise from many causes, occasionally being congenital, but mostly acquired. It occurs most frequently from neglected care of the nails and from injury to the member, particularly from pressure of coverings of the hands and feet, as from tight-fitting gloves, stockings, boots, shoes, and slippers. It may also develop as the result of certain local and constitutional affections. Thus, it occurs in connection with eczema, psoriasis, ichthyosis, syphilis, leprosy, lichen ruber, small-pox, scarlet fever, consumption, rheumatism, and certain nervous diseases.

Treatment.—The treatment of hypertrophy of the nails will vary according to the cause and the condition of the parts. Internal remedies are indicated when it occurs as a result of other diseases. Arsenic and iron, or the arsenite of iron, may assist in restoring the healthy condition of the matrix, and thus indirectly influence the nutrition of the nails. All sources of pressure upon the affected member or members must be removed. The growth itself may be partially or entirely removed by the knife, scissors, cutting-pliers, or the saw. The preferable way of locally managing hypertrophy of the nails on general principles is by paring the free end of the nail, avoiding scraping, and by pressing back, with the blunt end of the knife, scissors, or a piece of wood or bone, the free margin of the skin at the base and sides of the nail. This simple procedure, with the application of a soothing or an astringent ointment about the base and sides, either the tin or lead oleate ointment being serviceable, will often suffice to relieve or cure mild cases. If vegetable parasites have invaded the nail-structure, the discontinuance for a time of water to the parts, and the use of either the mercurous oleate or copper oleate ointments, will speedily effect a cure. Severe or chronic forms often require more active measures, as puncturing the soft parts with a knife, or leeching them, or removing the offending mass, and afterward applying soothing lotions or ointments. Many severe cases, especially of in-growing of the nail, can, if seen early, be relieved by working in a small piece of absorbent cotton between the nail and skin-fold ; the offending portion, which presses into the cutis, can thus gradually be elevated, and later cut off without entailing suffering. In the mean time, if the free end or side of the nail be frayed or brittle and irritable, it can be protected with wax or gum placed on the parts, enabling the patient to move around with more comfort. It will be observed, however, that the majority of cases of in-growing nails do not apply to the physician until the inflammation is so great and the toe so swollen and painful as to interfere with locomotion and lead to restless days and nights. I find, even under such circumstances, speedy relief can be afforded by cauterizing throughly the affected part, usually the internal angle of the great toe, with a crayon of silver nitrate or pure carbolic acid, after which the cotton can be used in the manner already indicated. This method of treatment is preferable to removing all or part of the nail, as it preserves the nail and is less painful.

Prognosis.—Appropriate treatment is, as a general rule, followed by the removal of the abnormal growth of the nail. In some congenital cases and those of long standing it is difficult to effect a cure. When occurring in connection with leprosy, ichthyosis, psoriasis, eczema, and certain other affections, it is necessary first to cure the disease before the nails can be restored to their normal condition.

CLASS VI.

ATROPHIES.

(*Atrophiæ.*)

ALBINISMUS.

SYNONYMS.—Albinism—Congenital achroma—Congenital leucopathia—Congenital leucocasmus—Congenital leucoderma.

Albinismus is congenital absence of the pigment of the skin. It may exist either over the whole body (albinismus universalis), or be limited to certain parts (albinismus partialis). Individuals affected with universal albinism are known as albinos, and are met with among all races. The skin, hair, iris, and choroid of these persons are more or less completely wanting in pigment. The skin is of a milky-white or pink shade, the hair over the entire body fine, soft, silky, and generally white, or yellowish-white, and, in rare cases, red in color. The eyes are of a pinkish-red color, owing to absence of pigment in the choroid and the iris. They are very sensitive to the light, the pupils constantly dilating and contracting, with more or less rotation of the eyeballs, and winking, making sight rather difficult except when the luminous rays become less powerful, when vision becomes much better. Albinos are generally short of stature, and are weak both in mind and body, being said to be especially predisposed to pulmonary affections.

ALBINISMUS PARTIALIS appears most frequently among the darker races, as in the negro, but it is occasionally met with in the white races. It occurs as one or more snowy-white or pinkish patches, which are usually circumscribed, but which may be of every variety of size and form. They may exist upon any region of the body, but are mostly confined to the scalp, face, the dorsal surface of the hands, nipples, and the genital region. They are generally irregular in their distribution, but occasionally are symmetrical, and found along the course of certain cutaneous nerves. The hairs upon the patches are frequently white. The eyes are normal, and do not exhibit an absence of pigment. Negroes affected with this form of albinism are spoken of as pied or piebald. The skin where patches have been has, through a redeposit of pigment, been known, in several instances, to resume its normal condition, but this restoration is very rare. The patches usually remain unchanged throughout life, or gradually extend until a large surface becomes covered and additional patches make their appearance. The cause of albinism is unknown. It is said to be sometimes hereditary. By Wilson, the cause of the disease is referred to the nervous system.

VITILIGO.

SYNONYMS.—Acquired leucoderma—Acquired leucopathia—Acquired achroma—Acquired leucasmus—Acquired piebald skin.

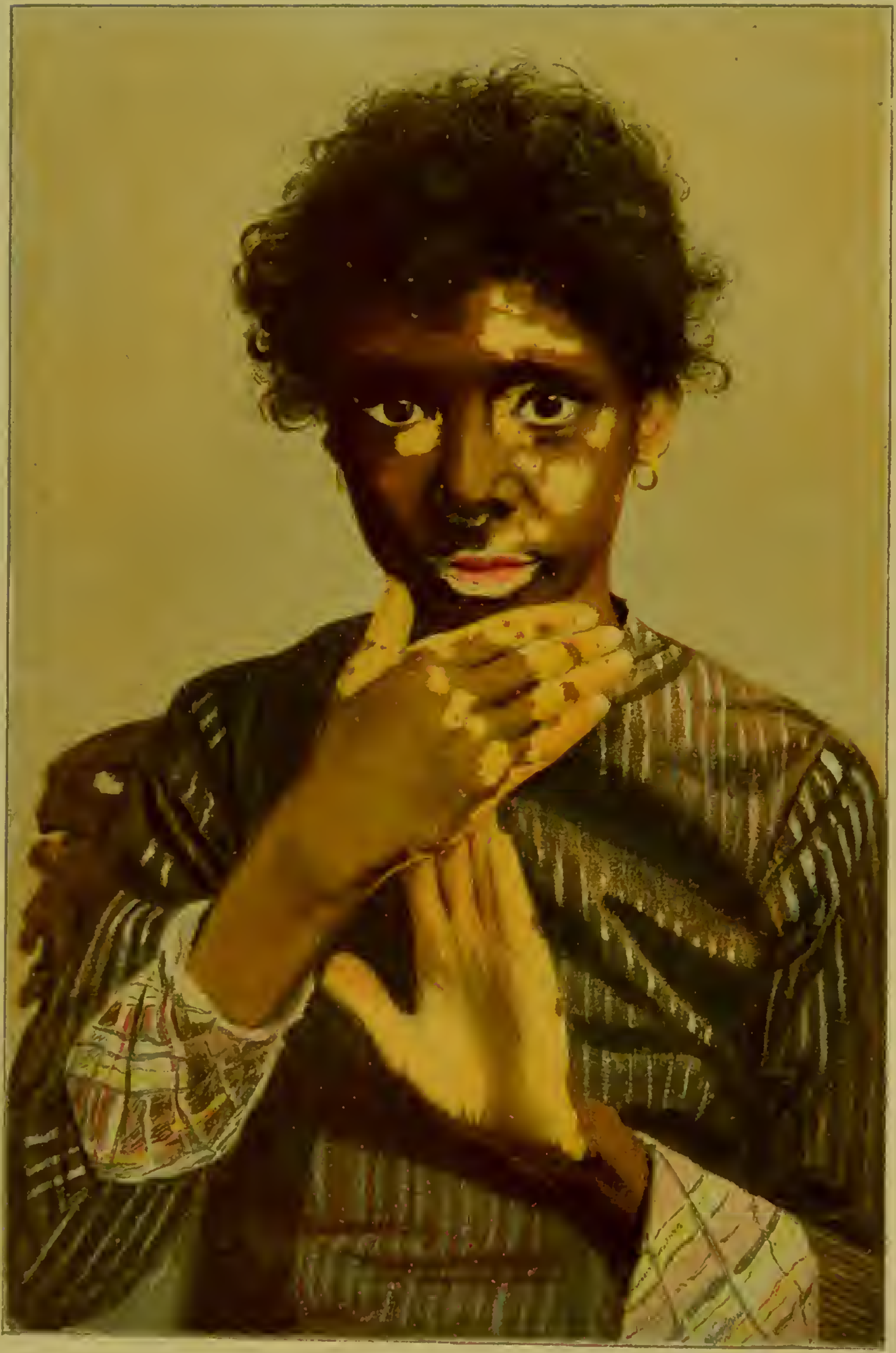
Vitiligo is an acquired disease of the skin, in which round, oval, or irregularly formed, sharply-defined, smooth white patches develop, which incline continually to increase in size, and are usually surrounded by an abnormally yellowish or darkly pigmented skin.

Symptoms.—The disease appears as one or more circular, sharply defined, white spots, notable for their absence of pigment. The surface of these spots is smooth, not scaly, and neither elevated above nor depressed below the general surface of the skin. These sharply-outlined spots are surrounded by an abnormally dark pigment, which gradually fades into the healthy skin. This surrounding pigmentation is almost a constant feature of the disease, and may exist to either a slight or a marked degree. In form, the spots are generally round or oval, but they may be angular and irregular. In size, they vary from a small to a good-sized coin, and may be even larger. They may increase in size and numbers, and may finally coalesce, forming patches which may involve the entire region affected, or perhaps nearly the whole body. Their color is milky or pinkish-white; their tint varying, however, to some extent in accordance with their age. To the touch, the spots feel just like any adjacent normal skin, exhibiting neither anæsthesia, pain, itching, nor any subjective symptoms. If hairs are present, they are well fixed in their follicles, and are in color sometimes normal, but are more frequently pigmentless. The disease may, as intimated, manifest itself upon all parts of the body, and even involve the hairs. It generally appears on the backs of the hands, the forehead, the scalp, and the trunk. The tendency of the disease is to assume the chronic form, usually continuing during the entire life. The spots may increase either slowly or rapidly, and new ones from time to time make their appearance, until a portion or the greater part of the body becomes affected. Marked disfigurement ensues from the disease, especially if the spots appear upon regions exposed, as the face, neck, and hands, as in Plate VI.

Diagnosis.—Vitiligo is liable to be confounded with leprosy and morphœa. In the last two affections, however, there is, in addition to the white spots, a structural alteration of the skin, and in leprosy it may also be anæsthetic, while in vitiligo the only change observable is simply an absence of pigment in the patches, with an increase of the same material around their periphery.

Pathology.—There appears no other abnormity beyond absence of pigment in the white patches and increase of it in the skin surrounding them.

Etiology.—Vitiligo, which is a rare disease, occurs in both sexes



From Nature—Vitiligo.

and at all ages, but is most common in early adult life, particularly in the darker races, as the negro. It is known to be caused by disturbance of general innervation, which may follow from both acute and chronic diseases. At times it appears among those apparently enjoying the best health, the cause of its development in these cases being unknown.

Treatment.—Treatment is practically of no value, there being no remedies at our disposal which will either remove or arrest the progress of the disease. In my experience, the many drugs which have been recommended, especially arsenic, have been entirely inoperative. All local treatment is equally powerless upon the patches, but the surrounding yellowish or brownish pigmentation may be removed so as to lessen materially the disfigurement. Galvanism is suitable for this purpose, as well as the use of such remedies as the mercurials, carbolic and acetic acids, the tincture of iodine, and the potash and soda soaps, alone or medicated.

Prognosis.—The disease is only a disfigurement, and in no manner affects the health of the patient. It is at present, as has been said, an incurable affection. The patches tend to increase until they occupy a large surface. Occasionally, however, their growth ceases, and they remain stationary throughout life.

CANITIES.

SYNONYMS.—Atrophy of the hair-pigment—Grayness or whiteness of the hair—Blanching of the hair—Poliosis—Trichonosis discolor.

Symptoms.—Atrophy of the hair-pigment may be either congenital, premature, or the result of advancing age. The congenital form is occasionally met with in albinism, the pigmentless, silvery or silky hairs appearing everywhere or only upon isolated parts of the body. Premature atrophy of the pigment of the hair may come on at almost any period of life, and may take place either gradually or suddenly. The change in the color of the hair may be to almost any shade, and may involve either a part or the whole of the hairy system. Flaxen hair may become chestnut, red, brown, black, or white; dark brown may change to red or light brown, black turn to flaxen, or become gray or white. Numerous instances are on record exhibiting such changes at various periods of life. Wilson* mentions several, and Smythe† and Prentiss also report cases of great interest, while I myself have seen in practice some; in which, however, the change of color of the hair has been gradual.

Young persons, especially women, often call upon the physician and ask for some application to turn their hair again light or dark, as

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* Wilson on Skin and Hair, p. 108, Philadelphia, 1876.

† Arch. of Derm., July, 1880.

it was at one time. I have now two cases under observation: one of a young woman who, about two years ago, had beautiful blonde hair, which has gradually changed, following a severe fever, to a chestnut color; the other, a young girl suffering from general debility, who had light-brown hair, which has slowly changed to a dark-brown. The most annoying change is that in which the hair turns gradually or suddenly gray or white. This latter form of atrophy of the hair-pigment may come on at any period of life, and, while many cases are met with in the young, it is by far more common at adult age. Premature grayness of the hair generally comes on slowly, but very many cases are recorded of the hair turning suddenly gray or white within a very few hours, or during the course of a night. The change in color may be slight, giving the hair-substance a gray appearance, or it may be more decided, the hair becoming silvery or entirely white. Atrophy of the hair-pigment may involve a part of a hair, or only certain segments of it, or the entire hair. Wilson* reports a case which exhibited an alternation of white and brown segments from one end to the other of the hair. It thus presents the peculiarity of marking in the porcupine's quill. Premature grayness or whiteness of the hair may be partial or universal. Again, the change in the color may involve hairs scattered through one or many portions of the affected part, or may involve only certain locks, or the entire part may be invaded. It is usual to see, in advancing years, a few silvery hairs scattered through the hair of the head or of the whiskers, or tufts of gray or white hair. Loss of pigment in the hair, through age, appears earlier in those possessing brown hair. It generally takes place first in a few isolated hairs on the temples. Sometimes the beard is the first part affected, and thence grayness spreads by degrees, until the scalp and the hairs upon all parts of the body become involved.

Etiology.—Premature atrophy of the hair-pigment may be caused by any one of the numerous internal derangements that have been referred to, and that give rise to alopecia. Cares, anxiety, severe wear and tear on life, prolonged mental strain, shocks, and all conditions that make a decided impression upon the nervous system will bring about a gradual or sudden atrophy of the hair-pigment. The use of certain forms of food and drugs, and increase in age, change in habits, seasons, and climate, will produce atrophy of the hair-pigment. Arsenic or pilocarpin, given internally, has been proved to produce this effect, while a growing youth's hair often changes with age, habits, and seasons, being light in winter and darker in summer. A dark-haired person, in passing from a southern to a northern climate, may lose a certain quantity of pigment of the hair, which, of course, causes a change in the color of the hair. Various external injuries, applications, and agencies, as exposure to air and sun, make a most decided change in the pigment of the hair.

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* Lectures on Dermatology, London, 1878.

Treatment.—Change of color in the hair may sometimes be arrested or concealed in the case of young persons, by the use of suitable systemic treatment, as indicated for each individual case, and by the employment of such agents as will, to a moderate degree, color the hair-substance. Among the most useful applications for this purpose are the oil of walnuts, oil of chamomile, oil of eggs,* oil of mace, oil of cassia, and oil of colocynth. A simple yet valuable agent is the ordinary sage, which is made into an infusion, and the hair frequently sponged and washed with it. Tannic or gallic acid, mixed with oil, glycerine, or lard, in the proportion of a drachm of either acid to an ounce of glycerine or lard, forms a most excellent preparation, that often decidedly darkens the color of the hair. In the event that gray or white hairs appear, all that can be accomplished by the physician is to arrest, if possible, their rapid formation, and when the patient wishes to conceal the loss of pigment, to recommend certain harmless agents which will permeate the hair, and in a measure produce the effect of the lost natural color. The formation of gray or white hairs may be temporarily restrained by neutralizing the cause of them, by the application of any of the local remedies mentioned, or by plucking out the silvery threads. If the atrophy of the hair-pigment has become extensive, the hair, whether gray or silvery white, can then be concealed thoroughly only by dyeing the hair.

The proper application of hair-dyes requires an acquaintance with the nature of the agent employed ; the skill to increase or decrease its strength according to the shade of color desired; and, lastly, dexterity in manipulation. Before using a dye, the hair should be cleansed with soap and water, or with a solution of soda or of spirit of ammonia, and allowed to dry for about one hour, after which the agent desired can be applied with advantage. The most lasting hair-dyes are the mineral ones, the vegetable dyes being often feeble in their action and uncertain in their effect, especially when employed by one unskilled in their application. Vegetable hair-dyes are usually considered the most harmless, although some of them, as, for instance, pyrogallic acid, largely used, may produce justly alarming symptoms. The most valuable of the class already named is the Eastern or Persian combination of the powder of the dried henna-plant with the powder of the indigo-plant. The two powders should be mixed separately with water and formed into a thick paste. The henna-paste is first spread on the hair, which develops, in the course of an hour, a red color, the indigo-paste being then applied in a similar manner. In the course of several hours the pastes are removed by water, leaving the hairs dyed a deep black. It is alleged, by those who introduced this dye from Persia, that, by means of regulating the proportions of the two ingredients, the length of time, and the degree of moisture, any shade of color of the hair that may be desired can be produced.

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* The oil is prepared from hard-boiled yelks.

Chrysarobin, goa, or araroba powder, one or two drachms to the ounce of lard, will give a dark-blue color to the hair.

The best, and at the same time the most popular mineral hair-dye, to produce a dark-brown or black color in the hair, is the nitrate of silver, either in the form of a solution or of an ointment.

I usually prefer to employ a solution of from fifteen to sixty grains of silver nitrate to the ounce of water. After preparing the hair, as already described, the solution of silver nitrate is applied. With a good-sized comb in the left hand, the operator lifts up the locks of hair, and with a soft, long-haired tooth-brush in the right hand, the dye is brought carefully in contact with the hair. The brush is moved up and down, rubbing the dye well in toward the roots, for, on account of the arrangement of the hair-cells, the silver oxide, as it decomposes from the menstruum, is thus better communicated to the hair-substance. The operator should endeavor to prevent the dye from coming in contact with the skin, and should hasten the process of drying the hair by rapidly fanning it. In case any dye should fall upon the skin, either fifteen grains of potassium iodide, or thirty grains of sodium sulphide, to the ounce of water, or a solution of sodium chloride, will remove it. Dyeing the hair requires from two to three hours' time. Evening is the best time for the operation, and the process will have to be repeated at intervals of from four to eight weeks, as the granules of silver oxide are mechanically rubbed off or otherwise lost, and white hair reappears. The length of time that the color will last, largely depends upon the more or less perfect manner in which the operation is performed. In the same way another dye, a weak solution of silver nitrate (ten to fifteen grains to the fluid ounce of water) can be used. After applying it, from one to two drachms of potassium sulphide to the fluid ounce of water are brought immediately in contact with the hair, forming, in combination with the nitrate of silver, a dark-brown or black color. Again, silver nitrate can be used with lead acetate, thirty to sixty grains of the former with two to three ounces of water. The dye can be applied in the form of an ointment, as follows: Silver nitrate and ammonia carbonate, each twenty to thirty grains; lard or simple ointment, one ounce.

Prognosis.—Premature canities is generally permanent. Occasionally, the pigment returns to the hair, particularly when the affection has been superinduced by some acute disease; but instances of this reversal are, as a rule, rare.

ATROPHIA CUTIS.

SYNONYMS.—Atrophia cutis propria—Atrophy of the skin.

Atrophy of the skin is characterized by a diminution in the thickness of one or more of its layers, or by the absorption or degeneration of the tissues of which they are composed. It may be either idiopathic or traumatic in origin, or it may occur as a symptom in the course of various nervous and constitutional disorders. It may involve the entire surface, as in the senile form and in certain rare diseases, or it may be restricted to narrow lines and spots, as in the lineæ albicantes of women who have borne children. In simple atrophy there is a more or less uniform decrease in the size and number of the constituents of each layer of the skin. In degenerative atrophy the elements are altered in structure, as well as diminished in number and size.

General idiopathic atrophy of the skin is an exceedingly rare affection. In a characteristic case, observed by Erasmus Wilson, the patient was a woman who had been in good health until her nervous system had been subjected to a severe strain. She then lost strength, and complained of severe pain in the left side, beneath her heart. In a few days her skin became sallow, and gradually became hard and contracted, until it appeared to be too small for her body. Her fingers and toes were bent and distorted, and her lower lip was drawn away from her mouth, so that her teeth and gums were exposed. In a case described by Kaposi, the atrophy was extensive, but not universal. The skin of the face, ears, neck, shoulders, and breast was perceptibly thinned, and so tightly stretched that some difficulty was experienced in raising it into folds. The surface was smooth in some places, and covered with furfuraceous scales in others. Sensibility was not impaired, and no subjective symptoms, other than a sense of tightness, were present. The affected skin was normal in color in some places, and yellowish-brown in others. A few small, bright-red telangiectases were observed on the surface. The abnormal condition of the skin ceased abruptly at the level of the third rib. Below that point the skin was normal in all respects.

In Hardaway's case* the patient was a blind man, twenty-three years of age, of healthy parentage. His cutaneous malady dated from infancy, and his loss of sight from his seventh year. His face was rosaceous and scarred. The integument of the neck was pigmented in spots, and reddened on the side, where numerous enlarged vessels could be seen. The front of the trunk presented a shining, checkered aspect, due to the alternation of pigmented spots with atrophic macules. The abdomen and chest were covered with cicatrices, and the umbilicus was stretched and elevated to the level of the surrounding skin. The skin around the elbows was pigmented and scaly.

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* Transactions of the American Dermatological Association, 1884.

The skin and muscles of the hands were atrophied. The feet were normal, but the integument covering the legs and thighs was atrophied and pigmented. The entire skin, in fact, except that of the feet, was tense and atrophic. The hairs over the entire body were short and scanty. The cutaneous sensibility was normal, but the perspiratory function of the skin was imperfectly performed. There were no objective symptoms. Examination of the eyes showed xerosis of the conjunctivæ, corneal opacities, and adhesion of the lids to the balls.

Taylor * and Duhring † have described a series of cases, under the name of "xeroderma of Hebra," which can be most appropriately mentioned here. This affection is characterized by the appearance at first of a number of small, discrete, widely disseminated, yellowish, brownish, or blackish, pigmented spots, similar in appearance to the lesions of lentigo, and found on the face, neck, trunk, and extremities. After a time small telangiectases, or circumscribed aggregations of dilated capillaries, appear between or upon the primary lesions. Finally, the spots become gradually changed into smooth, whitish, glistening cicatriform macules of various shapes and sizes. According to Taylor, this disease should be termed angioma pigmentosum et atrophicum. It appears to begin as a localized hyperæmia, with dilatation of the capillaries, leading to the subsequent formation of a variable number of telangiectases, which finally contract and induce more or less atrophy of that portion of the integument upon which they are situated.

In traumatic atrophy, due to an injury of a nerve, all the tissues which are supplied by that nerve suffer to a greater or lesser extent. The muscles become thin and flabby, the subcutaneous fat disappears, the skin becomes thin, dry, and wrinkled. The skin is harsh to the touch, and usually presents a dull, lustreless yellow or brown appearance. The nails fall off or become brittle and distorted. The hairs also fall out, or become thin, dry, and brittle.

The condition known as glossy-skin is indicative of impaired nutrition, and is usually the result of some lesion of the nervous system. It is observed as a sequence of obstinate neuralgia, or of an injury to a nerve-trunk. It may also occur in the course of progressive muscular atrophy. It is attended with more or less burning pain, and is characterized by a smooth, glossy, pinkish, or reddish appearance of the skin, somewhat resembling that which occurs in chilblains. The hairs and nails of the affected region become involved and drop out, and the surface may become the seat of superficial fissures or excoriations.

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* Transactions of the American Dermatological Association, 1878.

† American Journal of Medical Sciences, October, 1878.

SENILE ATROPHY.

Senile atrophy is due, as its name implies, to the changes produced by advancing age. It may be either simple or degenerative in character, but usually both forms occur together. The integument is thin, dry, and wrinkled, and presents a more or less pigmented appearance. All of the layers and structures of the skin are involved. According to Neumann the rete Malpighii is thin, and its cells are shrunken; the horny layer is dry and brittle, and more or less furrowed and easily detached; the corium is diminished in thickness, and the papillæ are absent or small in size. The subcutaneous connective tissue is usually devoid of fat. The pigmentary matter is brown or yellowish-brown in color, and is distributed irregularly throughout the rete and the corium. Many of the hair-follicles either disappear completely or shrink considerably in size and depth. The hair-papillæ become flattened, and the hairs are diminished in number and in size, and in many regions are entirely absent. The sebaceous glands undergo various alterations. Those which are connected with the follicles of the lanugo hairs are usually either transformed into cysts (milium) or are completely obliterated. In some cases they are simply enlarged in size. Those which are connected with the follicles of the large hairs are invariably found to be distended. Those which empty directly upon the surface of the skin are also enlarged. The blood-vessels are dilated and tortuous, and the muscular fibres undergo more or less granular degeneration. In some cases the entire substance of the corium becomes the seat of granular or of hyaloid degeneration. The sudoriferous glands do not exhibit any structural change.

The destructive processes of senile atrophy do not occur uniformly throughout the surface, but are more marked in some regions than in others.

STRIÆ ET MACULÆ ATROPHICÆ.

SYNONYM.—Atrophic lines and spots.

There are two varieties of this form of atrophy, the idiopathic and the traumatic. The lesions of the idiopathic variety develop slowly, and without any apparent cause. They consist of irregular cicatriform streaks, lines, spots, and furrows, which are more or less depressed beneath the surrounding normal surface. They are soft and thin to the touch, and present a glistening, bluish-white, or pearly appearance when fully developed. The spots are round, oval, or irregular in shape, and vary in size from that of a pin-head to that of a finger-nail. The lines and streaks are of varying width, and may be one or several inches in length. The furrows vary greatly in depth and size. The spots are usually isolated. They may occur upon any portion of the surface. The lines and streaks are usually numerous. They are placed parallel to each other, and run in a more or less oblique direction. They may appear upon any portion of the body, but are most frequently observed on the buttocks, thighs, arms, legs, and abdomen. They may occur in either sex and at any period of life. They are not accompanied by any objective or subjective symptoms. They run a protracted course for many years. In what is sometimes termed the neurotic form of cutaneous atrophy the lines and furrows are developed along the course of one or more of the peripheral nerves. The minute pearly atrophic lines are the result of slight distention of the skin or of incomplete separation of the superficial rhomboidal bundles of connective tissue. The large streaks and furrows are produced by complete separation, followed by obliteration or absorption of more or less connective tissue. Kaposi has examined the lesions microscopically, and has found the epidermis, and especially the rete mucosum, to be much atrophied. The corium is greatly thinned, and the papillæ are absorbed or destroyed. The sudoriferous and sebaceous glands are more or less obliterated, the fat-cells are absent, the blood-vessels are few and contracted, and the connective and elastic tissue is much diminished.

In some cases the lesions first develop as red, elevated lines or spots at points on the surface which are subjected to tension, but they gradually assume their characteristic atrophic appearance. The lesions of the traumatic variety consist of atrophic lines and furrows of various shapes and sizes. They may be produced by any cause which occasions extreme distention of the skin. They are most frequently observed in the abdomen of women who have borne children, as the result of abdominal distention during pregnancy (lineæ albicantes). They may be due, however, to distention from dropsy or obesity, to flatulence, or to the pressure of abdominal or other tumors. They may occur on the mammæ as the result of excessive distention of those organs during the period of lactation. They occur more readily in debilitated persons than in those who are robust. They are due to rupture or disarrangement of the connective-tissue bundles of the corium. They do not give rise to any inconvenience, but usually remain without modification throughout life.

ALOPECIA.

Alopecia is a partial or complete falling out of the hair from the scalp or other parts of the body naturally supplied with hairs.

Symptoms.—Alopecia may be either congenital, premature, natural, or circumscribed. Congenital baldness of the entire body, or of only a single part, is such a rare infirmity that, not being frequent, and seldom yielding to treatment, it will receive but a passing notice.

Instances of persons being born without any hair are occasionally reported. Schede relates a case of an individual, under his observation, having no hair or sign of the follicles on the scalp. Neumann cites instances of certain species of the horse in Little Thibet, and of certain races of African dogs and hogs, having no signs of hair on their hides. In the human family congenital absence of hair is usually limited to certain regions, or the hair is deficient or scanty in its development.

Premature Alopecia.—Premature loss of hair, either partial or complete, is so common, and occasions so much distress to all who are thus afflicted, as to demand from the physician who may seek to check, or to relieve it, the most careful consideration. It occurs, as indicated by its designation, in persons who have not reached an advanced age, and may be either an acute or a chronic affection. Sudden and rapid loss of hair, occurring in the course of from a few days to twelve or sixteen weeks, constitutes acute alopecia. It may or may not be attended by a change in the appearance of the hair (in syphilis the hair becomes rough, dry, and brittle), and inflammation or other cutaneous alterations of the skin may or may not supervene.

In some cases the scalp is not changed in appearance, and the hairs fall or are combed or brushed out daily to the number of from thirty or fifty to hundreds. The individuals so afflicted may or may not have neuralgic pains; most frequently, no subjective symptoms are present. In other instances the rapid loss of hair is preceded or accompanied by an inflammation or eruption. Formation of crusts or scurf may be either slight or marked, and itching, smarting, burning, and even painful sensations may be experienced. Chronic alopecia, the most common form met with, may or may not, like the acute, be accompanied with primary or secondary changes of the scalp. At times, before or during the loss of hair, the scalp is affected with dry seborrhœa or some other cutaneous disease. In very many cases, however, no alteration is apparent either in the general appearance of the hair or on the surface of the scalp. Alopecia usually begins long before the sufferer's attention is attracted to it by the concomitant of a lessening in the length of the hairs and their places being supplied by shorter ones. This first stage, in which the length of the hair decreases, may be observed by women, but rarely by men, unless they wear the hair very long. In due course of time this condition is succeeded by the second stage, in which, as Pincus truly describes it, the hair becomes thin, falls out, and is succeeded, not by hair having its original thickness, but generally by fine, short, and often downy hair. Even this downy hair may, in the course of time, drop out, and entire baldness supervene.

Chronic Alopecia usually begins at the vertex and extends forward on the frontal bone, and on each side, over the parietal bones to the pinna of the ear. Sometimes the loss of hair begins just above the forehead, and so spreads to the parts already named. It comes on so gradually as often to escape the most observant, until the second stage is reached, when baldness is almost certain to follow.

SENILE ALOPECIA.—Natural or senile alopecia is due to an alteration and atrophy of the hair-forming apparatus. It is observed in old persons, and is caused through the agency of the changes that the cutaneous tissues have undergone. It begins generally on the crown of the head, where the scalp, not being so vascular as elsewhere, is in consequence easily invaded by it. It is usually preceded by the hair becoming short, thin, rough, dry, turning gray, and being cast off slowly or rapidly, not to be restored. The hair upon other portions of the body may be cast off in a similar way, but seldom is to the same extent, as upon the scalp. Pincus and Neumann have investigated the alterations in the integument of senile baldness, and the change usually observed is atrophy of the follicles, sebaceous glands, and skin.

Diagnosis.—The diagnosis of the forms of alopecia just mentioned is simple; the only difficulty that may arise is the separation of one variety from another, and the recognition of the causative element in each case. It is, of course, important to be able early to distinguish between acute and chronic shedding of the hair. It will be noted, in the former case, that the shedding of the hair is usually diffuse and rapid, the hairs, on examination, not showing any evidence of disease in change of diameter toward the root-end, or any change of color there; whereas, in the latter case, the very opposite condition is to be observed, the hair being cast off gradually, its loss often hardly apparent at the beginning, although the thickness is lessened and the color often altered. In the event of difficulty experienced in distinguishing chronic from acute alopecia, the following method, described by Pincus, in "The Laws of Hair Development," is a most certain way of detecting it: "On three days collect [the fallen hairs] morning and evening, and, if the hair be worn long, separate those over six inches from the shorter ones. If the number of short ones is one third of the whole, there is disease. If the hair be worn short, those hairs which bear traces of the scissors should be separated from the point-hairs, those whose terminal extremity shows no trace of the scissors. If the hair be worn four or five inches long, the number of those point-hairs must not exceed one fourth or one fifth of the general loss."

It is also necessary to be able early to distinguish between ordinary and syphilitic alopecia. In syphilis the alopecia may be either slight or marked, and the hair is usually rapidly cast off, either in a uniformly diffused manner, or in patches having much the appearance of alopecia circumscripta. The previous history of the patient, the alteration of the hair and the scalp itself, and the concomitant symptoms, should all furnish a ready means of separating ordinary from syphilitic alopecia. Alopecia, from favus, is a form that should easily be recognized by the history, by the presence of the crusts, and by the employment of the microscope.

Etiology.—Premature loss of hair is more common in men than in women, and this fact is no doubt principally due to the large quantity of subcutaneous fat in women. It is also owing to the attention that woman devotes to this, Nature's ornament, with which she is usually abundantly supplied, that she enjoys greater immunity than man from its premature loss. Women are more apt, through the fact of the length and the constant dressing of their hair, to detect the first inroads of the disease, and to apply at once suitable remedies. They are able, through the various methods of dressing the hair, now in vogue, to conceal (more often the case than generally supposed) any and all evidence of thinning and baldness.

Premature loss of hair may be occasioned by both constitutional and local causes. Among the internal causes are the use of improper food by infants and growing children, as well as by youths and adults. Magendie showed that the feeding of dogs exclusively on cheese for a long time caused their hair to be shed. In a similar way persons who take poor food, especially one or two articles exclusively, or who feed on sweets, necessarily interfere with the hair-forming apparatus.

* "The nervous system, which is one of the most important parts of the human organization, and which controls circulation, secretion, and nutrition, often plays a prominent part, if impaired, in the production of baldness. It has been demonstrated by modern investigation that defective action of the nerves of nutrition is often the cause of the thinning and loss of hair. The nutritive action of a part is known suddenly to fail, the hair-forming apparatus ceases to act, the hairs drop out until few remain, and the part becomes entirely bald. It is the overtaxing of the physical powers, excessive brain-work, the exacting demands made by parents and teachers upon children's mental faculties, the loss of sleep, incessant cares, anxiety, grief, excitement, sudden depression and exaltation of the spirits, irregular and bolted meals, the lack of rest, recreation, and the abuse of tobacco, spirits, tea, coffee, and drugs of all forms, that are fruitful sources of this defective action of the nerves of nutrition and of general thinning and loss of hair."

Among other sources may be named debility, anæmia, syphilis, irritation of the gastro-intestinal canal, impoverished blood, and the strain and exhaustion attendant upon the presence of any disease in the body.

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* Extract from the Author's paper on Hair; its Use and Care. Transactions of the Medical Society, State of Pennsylvania, vol. xv.

In some cases alopecia develops without any assignable cause, and often, in such instances, it will be found that the individual inherits weak and poorly developed hair, and that the affection is hereditary baldness, derived from one or the other of the parents. The local causes are likewise very numerous. For instance, it is often brought about in both men and women by pressure interfering with the circulation, from some head-covering, as by the constant wearing of some one or other of the modern hats or bonnets. The improper use of combs, brushes, rubbing or scraping the parts roughly with one or the other of these articles, or the too frequent application of toilet preparations may promote the affection. Dyeing the hair, and constant shampooing and close cutting, in men, are likewise factors in premature loss of hair. Both sexes, and individuals of all ages, contract alopecia from large quantities of dust commingled with gaseous products, floating in the air of factories and workshops. The too frequent use of water on the scalp and other hairy parts of the body, especially of soapy water, or of water used in the form of the shower-bath, often causes irritation of the glands of the skin and a consequent wasting of the hair. Local cutaneous affections, as seborrhœa, eczema, and the ravages of animal and vegetable parasites, occasion loss of hair.

Treatment.—It is important, before considering the use of drugs for the relief or cure of alopecia, to point out briefly the care that the hair requires both to check and prevent its loss. The general hygiene of the patient should receive careful attention, especially after fevers, or any other debilitating and exhausting affections. The exciting cause should be sought out, and the patient be treated with such remedies as are required. The general health should be promoted by exercise and the employment of preparations like cod liver oil, bitter tonics, iron, quinine, nux vomica, strychnine, arsenic, and phosphorus. Minute doses of one of the mercurial salts often have a most beneficial effect in arresting the progress of ordinary alopecia. In cases of syphilis, either mercury, the iodides, or tonics are necessary. Local care of the hair is of the utmost value. It is essential that the hair, particularly that of the head, should receive marked attention. In reference to the use of coverings for it, I know of no better rules than those given in my chapter on clothing in "Household Practice of Medicine" (vol. i, p. 218, William Wood & Co., New York), in which I state that the head is the only part of the body so protected by nature as to need no artificial covering.

"The stiff hats, so extensively worn by men, produce more or less injury. Premature baldness most frequently first attacks that part of the head where pressure is made by the hat. It is, indeed, a pity that custom has so rigidly decreed that men and women must not appear out-of-doors with heads uncovered. It would be far better for the hair if to be bareheaded were the rule, and to wear a hat the exception. Since, however, we can not change our social regulations in this respect, we should endeavor to render them as harmless as possible. The forms of hats that are least injurious are, for winter, soft hats of light weight, having an open structure, or pierced with numerous holes; for summer, light straw hats, also of open structure.

"As regards the head-covering of women, the fashions have been for several years favorable to proper form. The bonnet and hat have become quite small, and cover but little of the head. This beneficial change is, however, in part counterbalanced by the weight of false curls, switches, puffs, etc., by the aid of which women dress the head. These, by interfering with evaporation of the secretions, prevent proper regulation of the temperature of the scalp, and likewise lead to the retention of a certain amount of excrementitious matter, both of which things are a prolific source of rapid thinning and loss of hair in women. False hair has likewise sometimes been the means of introducing parasites, which give rise to loss of hair and obstinate affections of the scalp.

* "Cleanliness of the entire surface of the skin should demand attention, and that should be accomplished by water, the best medium of ablution. It is a well-known physiological law that it is necessary, in order to enable the skin to carry on its healthful action, to wash off with water the constantly cast-off scales of scarf-skin which, otherwise, mingled with the unctuous and saline products, together with particles of dirt coating the pores, also interfere with the development of the hairs. Water for ablution may be of any temperature agreeable to the bather, according to habit and the condition of the bather's health. Many chemical substances can be combined with water to rinse effete products off the skin. Soap is, however, the most efficacious of all for cleanliness, health, and the avoidance of disease. Soap combines with water to render these unctuous products miscible, and readily removes them thoroughly from the skin. The best variety of soap to use for bathing purposes is the pure white soap, which escapes noxious qualities often introduced with coloring material,-and can not escape detection of inferiority through the introduction of some perfume or medicinal substance. - Ablution with soap and water should be performed once or twice a week at least, particularly ablution of the head and beard, in order to keep open the hair-tubes, so that they may take in oxygen, give out carbon, carry on their nutrition, and maintain the hairs in a finely polished and healthy condition. In using water on the scalp and beard, care should be taken not to use soapy water too frequently, as it often causes irritation of the glands and leads to the formation of scurf. It is equally important to avoid using daily on the head the shower-bath, which, by its

sudden, rapid, and heavy fall, excites local irritation, and, as a result, speedy loss of hair. In case the health demands the shower-bath, the hair should be protected by a bathing-cap. The best time to wash the hair, for those not accustomed to doing it with their morning bath, is just before retiring, so that they may avoid going into the open air, or getting into a draught and taking cold. After washing, the hair should be briskly rubbed with rough towels—the Turkish towel, heated, being particularly well adapted to the purpose. Those who are delicate or sick, and fear taking cold, or being chilled from the wet or damp hair, should have rubbed into the scalp a little bay-rum, alcohol, or oil, a short time after the parts have been well chafed with towels. Oil is particularly serviceable at this period, as it is easily absorbed, overcoming the undue dryness of the skin which often follows washing.

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* Extract from the Author's paper *loc. cit.*

"It might be well to add in this connection the advice that I have frequently given, when consulted by those taking salt-water baths, as to the care of the hair during and after the bath. If the bather is in good health, if the hair is normal, the bather can go into the surf and remain at least fifteen minutes, and on coming out should rub the hair thoroughly with dry towels. Ladies should permit the hair to remain loose until thoroughly dry, after which it can be advantageously dressed. It is, however, injurious, to both men and women experiencing some wasting of the hair, to go into the surf without properly protecting it. Sea-water has not, as is often thought, a tonic action on the scalp; on the contrary, it often excites irritation and general thinning of the hair. Again, it is most decidedly injurious to the hair for persons to remain in the surf one or two hours, the hair wet, and the head unprotected from the rays of the sun. This latter class of bathers, and those who hurriedly dress the hair while wet, which soon becomes mouldy and emits a disagreeable odor, are frequent sufferers from general loss and thinning of the hair.

"An agreeable and efficient adjunct after ablution, already mentioned, is oil. Oil has not only a cleansing action upon the scalp, but it also relieves any rough or uneven condition of the hair, and gives it a soft and glossy appearance. The oil of ergot is particularly serviceable in producing these effects, and at the same time, by its soothing and slightly astringent action upon the glands, will arrest the formation of scurf and assist in checking loss of hair. In using oil, the animal and vegetable oils should always be preferred, as mineral oils, especially the petroleum products, have very poor affinity for animal tissues. Pomatum is largely used by many persons instead of oil, as it remains on the surface, and gives a full appearance to the hairs, thus hiding sometimes the thinness of the hair. It will do no harm, and no special good, if it contains pure grease, wax, harmless perfume, and coloring matter, but it is often highly adulterated, and, the fat in it decomposing, sets up irritation in the parts to which it is applied. I therefore always advise against its use.

"The comb and brush are agents of the toilet by which the hair is kept clean, vigorous, and healthy. The comb should be of flexible gum, with large, broad, blunt, round, and coarse teeth, having plenty of elasticity. It should be used to remove from the hair any scurf or dirt that may have become entangled in it, and to separate the individual hairs and prevent them from becoming twisted and matted together. The fine-tooth comb, made with the teeth much closer together, can be used in place of the regular toilet-comb just named, when the hair is filled with very fine particles of scurf, dirt, or when parasites and their eggs infest the hair. It should, however, always be borne in mind that combs are only for the hair, and not for the scalp, which is too often excoriated by roughly pulling these valuable and important articles of the toilet through the scalp as well as the hair. The brush, with moderately stiff whalebone bristles, may be passed gently over the hair several times during the day, to brush out the dust and the dandruff, and to keep the hair smooth, soft, and clean. Rough brushing of the hair, with brushes having very stiff bristles in them, especially wire bristles, is of no service, but often irritates the parts and causes the hair to fall out. The use of the so-called electric brush is injurious, as is also the attempt to remove dandruff by the aid of the comb and brush. And now the question arises, Should the hair be periodically cut? It may be that cutting and shaving may for the time being increase the rate of the growth, but they have no permanent effect either upon the hair-bulb or the hair-sac, and will not in any way add to the life of the hair. On the contrary, cutting and shaving will cause the hair to grow longer for the time being, but in the end will inevitably shorten its term of life, by exhausting the nutritive action of the hair-forming apparatus. When the hairs are frequently cut, they will usually become coarser, often losing the beautiful gloss of the fine and delicate hairs. The pigment will likewise change—brown, for instance, becoming chestnut, and black changing to a dark brown. In addition, the ends of very many hairs will be split and ragged, presenting a brush-like appearance. If the hairs appear stunted in their growth upon portions of the scalp or beard, or gray hairs crop up here and there, the method of clipping off the ends of the short hairs, of plucking out the ragged, withered, and gray hairs, will cause them to grow stronger, longer, and thicker.

"The hair of growing children should not be cut at certain periods of the year (during the superstitious time of full moon, for instance), in order to increase its length and luxuriance as they bloom into womanhood and manhood. This practice of cutting the hair of children brings evil instead of good, and is condemned by the distinguished worker in this department, Kaposi, who states that it is well known that the hair of women who possess luxuriant locks at the time of girlhood, never again attains its original length after having once been cut. Pincus has by repeated experiment determined the same thing; and he says, as to the general opinion that frequent cutting of the hair increases its length, that the effect is opposite to that generally supposed. He states that, upon one occasion, he cut off circles of hair an inch in diameter from the heads of healthy men, and from week to week compared the intensity of growth of the shorn places with the rest of the hair. The result was surprising to this close and careful observer, for, although he found in some cases the rate of growth equal in those places to that on the rest of the head, he never observed an increase in rapidity of growth.

"I might add that I believe that many beardless faces and bald heads, in middle and advancing age, are often due to constant cutting and shaving in early life. The young girls and boys seen daily upon our streets with their closely-cropped heads, and the young men with their clean-shaven faces, are year by year through this fashion having their hair-forming apparatus overstrained. I must also condemn the modern practice of curling and crimping, the use of bandoline, and all varieties of gum solutions, sharp hair-pins, long-pointed metal ornaments, and hair-combs, the wearing of chignons, false plaits, curls, and frizzes. The last four articles mentioned tend to cause congestion and headaches. Likewise, I protest against the use of castor-oil and the various mixtures extolled as the best tonics and restoratives, as they are highly injurious instead of beneficial."

In the use of local agents for alopecia, the aim should be the application of such as are indicated for each case. In many, local remedies of a stimulating and astringent nature are demanded, while in others soothing and nutritive agents produce the best effect. If the hairs are cast off and no appreciable change has taken place in them or in the scalp, the use of either balsam of Peru, tannate of quinia and cinchona, naphthol, one drachm of either to the ounce of scented lard, is often, through its stimulating action, attended with good results. If, however, the scalp should be covered with sebaceous secretions, the glands plugged up (which is often the case), the hairs dry and lustreless, the employment of stimulating oils, especially the oil of ergot and oil of eucalyptus, may prove of service. A very useful application for this condition is equal parts of the oil of ergot and the fluid mercury oleate, scented with oil of roses and verbena. Another valuable remedy, the quillaya saponaria, the soap-bark, I first pointed out in a communication in 1879.* The soap-bark can be used in the form of the fluid extract, or infusion, mopped over the surface several times daily. In case the affection persists, the employment of local galvanism, or faradism, by the sponge or brush, often assists in arresting the loss of hair. If more decidedly stimulating agents become necessary, the application of remedies used in the treatment of the circumscribed form of alopecia may be employed.

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* Loss of Hair, by the Author. The Medical Bulletin, vol. i, March, 1879.

Prognosis.—Congenital alopecia can seldom be benefited; senile baldness is irremediable. The premature form may be checked or cured; the prognosis will, however, largely depend upon the duration of the disease and the exciting cause. Individuals with good habits, treated when the disease is early recognized, are often cured, or benefited. Alopecia sometimes, even under the most favorable circumstances, progresses to permanent baldness, notwithstanding our best efforts. The prognosis of old cases of premature alopecia is usually very unfavorable.

ALOPECIA CIRCUMSCRIPTA.

SYNONYMS.—Alopecia areata—Area celsi—Porrigo decalvans—Tinea decalvans.

Alopecia circumscripta is a neurotic affection of the hair-forming apparatus, generally characterized by the sudden loss of hair over one or more circumscribed patches of various sizes and shapes.

Symptoms.—It usually begins on the scalp, in one or more isolated patches, each one appearing suddenly and alone, or simultaneously, or in succession, without any premonitory symptoms. It may attack any hairy part of the body, but its usual seat is the scalp, the beard, the axillæ, and the pubes. It generally first attacks the scalp of those persons who have been endowed with a luxuriant growth of hair, and, next in order, the beard, although the latter, and other parts of the body, are seldom invaded by it. On the scalp the hairs are cast out of the follicles without having been broken off beyond the skin, the loss of hair in spots spreads peripherally, and is often increased by the addition of other spots. The disease usually comes on very suddenly, often without the least warning; a person's attention being sometimes first attracted to it during the course of the toilet. The hair may thus be shed between-whiles, unnoticed. Occasionally the loss of hair comes on slowly—days, and at times weeks, passing by during the process of the shedding, until the bald patches are fully established. The patches may be circular, circumscribed, long, or irregular in shape, and may vary in size from a small point to a very large surface, at times covering the entire scalp. They are usually from one to three inches in diameter, isolated, unilateral, well outlined, and, when once thus determinately formed, they seldom increase. But during the progress of the disease they occasionally spread, coalesce, assume all manner of shapes, and are either arrested or denude the entire scalp. Sometimes, in the former case, shedding occurs in other parts of the body, the hairs falling from the entire surface, as from the eyebrows, the eyelashes, the chest, and, in the case of the male sex, from the axillary and pubic regions.

The denuded patches are somewhat paler than the normal skin, or slightly raised, especially in the beginning, reddened, and studded with follicular openings. In some cases the skin is thin, smooth, polished, and the follicles closed, while in others a few straggling, poorly-developed hairs are observed over the surface and around the margins of the patches. The hairs around the patches are usually loose, coming out on the slightest pull, until the falling out has been arrested, when they become firmly fixed in the follicles. The skin of the patches has either a normal or else a softish feel, and is characterized by a diminished or a positive absence of sensibility. These latter conditions, when present, follow the development of the patches. Itching is a symptom that may appear either before or during the course of the disease. In the majority of cases, however, all subjective symptoms are absent, except the great mental annoyance which the disease causes, from contemplation of the marked deformity produced by the bald spots.

When the disease is arrested, or restoration sets in, the patches become covered with light-colored, fine, woolly hairs, which are often, in turn, partially or generally shed, to be in time increased in numbers, thickness, length, and pigmentation, until normal hair covers the parts. This affection may seem to be entirely cured, and yet a recurrent attack may come and again denude the spots. The duration of the disease is variable, depending largely upon the age of the individual and the state of the system. Cures are sometimes effected rapidly, but sometimes weeks, months, and years succeed one another before a favorable change appears, and in some cases the baldness remains permanent.

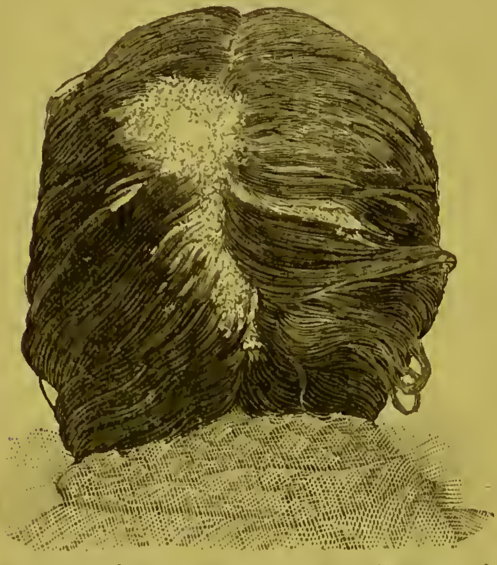

FIG. 13.—Alopecia circumscripta. Photograph taken from a case at the Philadelphia Hospital for Diseases of the Skin. Patches shown on the posterior part of the scalp.

Diagnosis.—Alopecia circumscripta is liable to be confounded with the other forms of loss of hair, already described, and with tinea capitis and favus. The sudden shedding of the hair in more or less isolated, smooth, bald patches, in alopecia circumscripta, and the gradual encroachments of the disease, with the absence of the circumscribed patches in the other varieties, are the most ready means of distinguishing this disease from the others. Syphilitic alopecia, which is usually diffuse and rapid, might, of all the forms already mentioned, be most easily mistaken for alopecia circumscripta. The history of the case, however, the presence of seborrhœa, which generally accompanies it, as well as concomitant symptoms of syphilis on the scalp or some part of the integument, ought to enable it to be so easily diagnosed as to render impossible its being confounded with alopecia circumscripta. Alopecia circumscripta is to be distinguished from ringworm of the scalp, also, by the suddenness of the onset in the former affection, by its characteristic isolated, smooth, bald spots, and by the atrophy about the root-end of the falling hairs, while, in the latter affection, the disease begins and spreads gradually, the patches are filled with hair-stumps, scales, and often crusts, and the microscope reveals, instead of atrophied hairs, mycelium and spores. Alopecia circumscripta may be distinguished from favus also, by the absence of the peculiar yellowish crusts of favus and of all sign of the vegetable parasitic irritation above described.

Etiology.—The disease occurs in men and women. Children, adults, and old persons are equally liable to be attacked by it. From what has already been stated, it will be observed that it is non-parasitic; therefore, that it is not contagious. It is owing, beyond all question, to some impairment in the nervous system. Functional nervous disturbance often leads to altered nutrition of a part and a consequent loss of hair. It often follows some nervous affection, as epilepsy and neuralgia. Sudden shocks and frights are also well-known causes of it.* It may likewise arise from debility, during and after fevers, and from any severe illness. Direct or indirect injury is also among the many causes that may occasion it.

Pathology.—The anatomical condition of the skin and hairs, in this variety of alopecia, has been examined by numerous investigators without yielding any satisfactory result in accounting for the morbid process. Rindfleisch reports, in the "Archiv für Dermatologie und Syphilis," a nodular swelling of the hair "between the hair-bulb, on the one hand, and the narrowest part of the follicle, on the other." This condition was shown by Kaposi to be found in other diseases, and to be producible by the mechanical extraction of the hair. Jamieson † examined a specimen of skin removed from a patient, and was not able to find any changes in either the follicles, glands, or tissue. A microscopical examination of a hair from the area, or from the margin of a patch, shows an atrophied condition similar to that observed in the normal loss of hair. The root-extremity of the hair, instead of being bulbous, as it is found in healthy hair, is attenuated and often markedly atrophied. The degree of this condition varies, of course, according to the stage which the affection has reached at the period when the hair is removed for examination. In examining the hair still further, it may be found gradually dilated along the shaft and bulging just before terminating either in a split end or a hair-point. This swollen, ragged, or split condition of the hair is owing to the fact that it has not received sufficient nutriment. The bundles of cells, deprived of their natural stimulus, have separated and given rise to the condition described. The same change that time brings to the normal loss of hair has taken place prematurely from alopecia circumscripta. Some disturbance or impairment in the nervous system, no doubt, plays an active part in bringing about these changes in the hair, thus causing its sudden and unexpected loss.

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* Wiener Medicinisch Wochenschrift, July 19, 1884.

† Edinburgh Medical Journal, March, 1879.

Treatment.—Attention to the general system is essential. The patient should have a generous diet, especially those forms of food that afford ample nourishment. Change of diet, as well as of air, and the employment of all measures, especially hygienic, to invigorate the nervous system, will be found most efficacious. The use of local and general galvanism is often followed by the most beneficial results. As this form of the affection can usually be traced to an imperfect condition of the nervous system, I always endeavor, by the use of the general means already mentioned, and by proper medicines, to attack the latent source of the disease. The employment of such agents as arsenic, strychnine, phosphorus, quinine, iron, and cod-liver oil, preparations that have likewise been suggested for the treatment of the premature form of alopecia, will be found of great value.

The local treatment referred to, when speaking of premature alopecia, can be used advantageously in mild cases also, especially if the surface of a patch be elevated and congested. Pale, smooth, and depressed patches demand more active stimulation—agents that will make a decided and quick impression. The most valuable of all remedies for strong stimulation, both upon and in the parts, is the ointment of mercurous oleate. I formerly employed the weaker preparation, the ointment of mercuric oleate, but time and experience have shown the stronger oleate to be the best to use. Naphthol and sulphur iodide are both useful remedies, employed either alone, ten to sixty grains to the ounce of lard, or combined, in the same proportions. Turpentine, chrysarobin, cantharides, veratria, tannic or gallic acids, are agents that can be used in the form of ointment with good result.

Fluid, stimulating, or blistering agents, are often of value, and among the most important are alcohol, the various spirits, essential oils, acetic acid, and cantharidal collodion. The following can be used advantageously :

℞ Spiritus vini rectificati........... f℥j.
Tincturæ cantharidis, .
Tincturæ capsici.............. āā fʒij.
Spiritus rosmarini............... f℥j.
Spiritus ammonii fort............ f℥j. M.

Cantharidal collodion, painted over the patches, if small, every week or ten days, is often of advantage. If the patches be very large, or the entire scalp or surface be involved, other remedies, not so active, will have to be called into requisition. A useful lotion I have employed consists of:

℞ Ammonii mur................... ℈j.
Hydrargyri chlor. corros.......... gr. x.
Spiritus hamamelis............... f℥j.
Spiritus vini rectificati............ f℥iij. M.

Glacial acetic acid, painted over small patches, from time to time, is also of service. I have often found the application of either simple or compound hot poultices of the greatest value, particularly if a large part of the scalp be involved. A useful agent to add to a poultice so employed is mustard or capsicum. The retention of heat and moisture, either by a poultice occasionally applied, or by wearing constantly a wig over the denuded surface, hiding also the disfigurement, is often followed by the most happy results, especially in stubborn and long-standing cases.

Prognosis.—Alopecia circumscripta is generally curable. Its course is, however, usually protracted, as has been said, into months and years. The age of the patient and the exciting cause are factors upon which an opinion should be largely based. As a general rule, young persons and adults recover their hair; the prognosis is not so favorable for those advanced in age. Continuous and long-protracted diseases, especially those of the nervous system, often leave, as has also been already noted, permanent baldness as a consequence of alopecia circumscripta. Mild, and occasionally severe, cases sometimes recover in an apparently spontaneous manner, but, without doubt, from the fact of the system having again returned to healthy working order. The deformity entailed by the disease, especially if a conspicuous part of the body be involved, often leads to great mental distress, and it is only by persistent encouragement, and the constant use of the remedies mentioned, that cure can in the majority of cases be hastened and made permanent.

ATROPHY OF THE HAIR.

SYNONYM.—Atrophia pilorum propria.

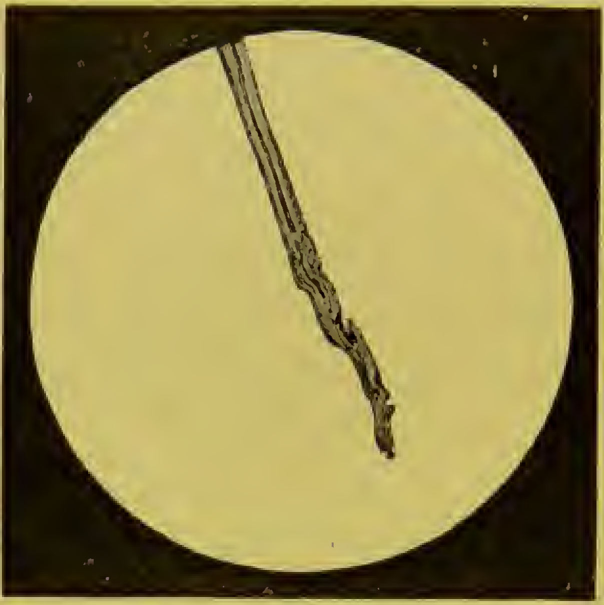

FIG. 14.—Atrophy of hair-root.

Symptoms.—Hair itself occasionally undergoes atrophic alteration in its structure. It becomes changed in part or in all of its length, either by increase or diminution in diameter. In some instances the shaft of the hair is the seat at one point, or at irregular intervals, of small bulbous swellings, which have a dark or shiny appearance, and is liable to break off between and at these nodosities, leaving a ragged, brush-like end. This nodose condition occasionally results, through the collection of pigment in the swellings, in the hair's presenting alternately bright and dark color, giving a bead-like effect throughout the mass of hair, causing its great disfigurement. This form of atrophy of the hair is more especially confined to the beard and mustache, but is occasionally met with on the scalp and other hairy parts of the body. It is usually described as trichorexis nodosa; and another condition, similar to it, is known as piedra.

Another variety of atrophy of the hair,

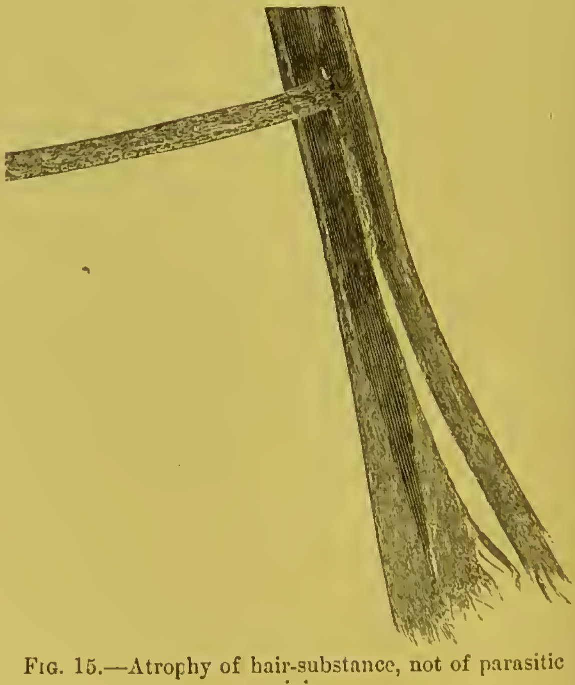

FIG. 15.—Atrophy of hair-substance, not of parasitic origin.

generally known as fragilitas crinium, is characterized by a brittle and cleft state of a part or all the hair-substance, often within as well as without the hair-follicle. The hairs, more particularly those of the head and beard, are irregularly thin or flattened, rough, uneven along the shaft, at points brittle, breaking off and splitting up, often into several fibrillæ (see Fig. 15). The alteration goes on within the follicle; the hairs may be curled up within it, and considerable irritation often, in consequence, follows in the integument, chiefly observable in the region of the beard and on the lower limbs. It may involve the hairs to either a slight or a marked extent. In case the latter condition supervene, the poor growth, with its marked changes, produces great deformity.

Diagnosis.—The broken-off, cleft, and deadened condition of the hairs, with often attendant irritability of the surrounding integument, has occasionally been mistaken for ringworm. The history of contagion in the latter affection, the circular arrangement of the patches, and the presence of the vegetable parasite, discoverable by the employment of the microscope, will always serve, however, to establish the diagnosis of the latter affection, and distinguish it conclusively from the other.

Etiology.—Atrophy of the hair, producing many of the curious growths of the hair that have been reported from time to time, may result from either constitutional or local diseases. Many cases, however, do occur that can not be traced to any assignable cause. It often follows from fevers, or from debilitating and exhausting conditions that affect the hair-forming apparatus. Phthisis, malaria, syphilis, and excesses of various kinds are prolific among the causes that bring about atrophic alterations in the structure of the hair. Among the local conditions that lead to it are seborrhœa, eczema, the effect of the ravages of vegetable and animal parasites, and the use of applications to eradicate these affections. Atrophy of the hair also follows from the many local causes that have been already mentioned, that produce premature loss of hair.

Treatment.—The exciting cause, if any can be detected, should, if possible, be removed. Tonics and remedies that reëstablish nutrition in the system are usually indicated. Cod-liver oil and small doses of arsenious acid, or sodium arsenitis, are often productive of much good. As a general rule, the persistent use of local means will lead to the best results. Plucking out or breaking off the diseased ends of the hair, if too many hairs are not involved, and rubbing into them a ten-per-cent ointment of mercury oleate, once or twice daily, will at times restore the hair to healthy growth. If a large number of hairs are involved, shaving the entire surface is generally recommended; but I prefer to clip off the affected ends, or, if necessary, the whole hair-shaft, and then to apply the ointment just suggested. If the greater part of the hair-shaft be the seat of bulbous swellings, or only the portion of the hair situated within the follicle be involved, I find that better results follow from cutting the hair very close, and then using the ointment, than from shaving. The ointment of the nitrate or the ammoniated mercury, thirty to sixty grains to the ounce of lard, are also good preparations to use on the affected hairs. The application of either the oil of oats or corn, with a few drops of oil of chamomile, will often assist in restoring the hairs to their normal condition. I sometimes use the following prescription with good effect:

℞ Olei myristicæ,
Olei anthemidis.................. āā f ʒ ij.
Hydrargyri oleatis fl. 10 per cent..... f ℥ ij.
Olei verbenæ........................ gtt. v.
Olei rosæ........... .... gtt. j.
Olei ergotæ......................... f ℥ ijss. M.

The various stimulating remedies and combinations previously mentioned, for the treatment of the premature and circumscribed forms of loss of hair, will often be found advantageous to employ.

Prognosis.—Young subjects, by persistent attention to the treatment, may cause sound and vigorous hairs to replace those previously diseased. Failure very often follows the best means and efforts to cure this distressing affection. The prognosis for persons of advanced years, and for cases of long standing, irrespective of age, is not favorable.

ATROPHY OF THE NAILS.

Synonym.—Onychatrophia.

Atrophy of the nails, or their absence, may be congenital or acquired. In the congenital form there is frequently associated with this affection an imperfect development of the phalanges and an absence of hair. Acquired atrophy, or a deficient development or growth of the nails, may be caused by any local or general disturbance which may affect the matrix or the bed of the nail; as from an injury. Syphilis, a fever, and often hypertrophy of the nails, are sometimes secondarily succeeded by this kind of atrophy. Atrophied nail-substance may undergo alterations similar to those described for hypertrophy, becoming changed in size, shape, consistency, and color. Thus, the nail may become both smaller and thinner, flexible, or brittle and easily broken ; or it may become soft, granular, and even present a worm-eaten appearance. The surface of the nail may be smooth and unaltered in appearance, or may be discolored, opaque, or yellow and fissured.

Treatment.—The treatment of atrophy of the nails depends mainly upon the cause, which should first be removed, if that be possible. If the diseased nails are painful, or interfere with the occupation of the patient, the application of soothing ointments, as the zinc or lead oleate, will be beneficial, and the use of wax or gum over the nails, as a protective layer, will be found most grateful. The nails may at times be benefited, and their healthy growth promoted by applications of either sweet-oil, cod-liver oil, oil of cade, mercuric oleate ointment, or mercurial plaster.

CLASS VII.

TUMORS.

(*Neoplasmata.*)

RHINOSCLEROMA.

RHINOSCLEROMA is a new growth of the skin, characterized by the appearance of flat and somewhat elevated, sharply defined, isolated, or conglomerate tubercles, rounded prominences, or plate-shaped masses around the nose and adjacent parts.

Symptoms.—Hebra and Kaposi, conjointly, in the year 1870,* first described this rare affection, which usually begins without pain or inflammatory symptoms, in the septum or single ala of the nose. The growth, which is well defined and elevated above the normal skin, presents an uneven but plate-shaped surface, formed from the variously-sized tubercles of which it is composed. In color, the tubercles and rounded prominences may be either of the tint of the natural skin, or of a bright or dark brownish-red, intersected with dilated vessels, presenting a smooth, polished appearance, devoid of hairs and follicles. From the epidermis over them, which is dry and somewhat fissured, is secreted a viscid fluid that is converted into yellowish, dry, adherent crusts. The structures are of great density, and to the sense of touch they feel like cartilage or ivory. The skin over the tubercles is not movable, and can be picked up between the fingers only by the growth. Pressure upon the parts develops a certain perception of elasticity and also more or less pain, which is about the only subjective symptom, except the impediment which the formation opposes to respiration. The portions of the skin adjacent to the growth remain perfectly normal, and are not affected with any inflammatory symptoms. The growth, as has been before mentioned, invariably attacks the septum and alæ, and thence spreads to the mucous membrane of the contiguous parts, especially the upper lip. Hebra cites, in this connection, cases in which the hard and soft palate, especially the uvula, the pharynx, and the true vocal chords were involved. As the disease, which always becomes chronic, progresses, there is little or no alteration in the sense of smell, the parts, however, becoming swollen, deformed, the calibre of one or both nasal passages narrowed, and at last partially or completely occluded, thus stopping respiration through those channels.

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* Wien. med. Woch., No. 1, 1870.

At an advanced stage the growth affects the mucous membrane of the lips, and eventually the periosteum of the alveoli, even the alveoli themselves perhaps becoming involved. During the course of the disease the tubercles do not, as a general rule, undergo any change, but Zeissl reports a case in which ulcerative action was followed by the destruction of the tip, the right ala, and the left nostril of the nose. There are, however, at times, superficial excoriations which manifest hardness. If a portion of the growth be excised, or otherwise destroyed, the remaining parts will not suppurate or break down, but become coated over with a thin, brown crust, heal very soon, and rapidly reproduce themselves. The disease generally develops between the twenty-fifth and fortieth years of life, and appears to have no effect upon the general system.

Diagnosis.—The diagnosis of rhinoscleroma is often rendered very difficult, owing to the great resemblance between it and lupus, syphilis, keloid, and epithelioma. The location of the growth, the change in the appearance of the nostrils, the elevated, dense condition of the tissues, experiencing pain on pressure, and the exceedingly chronic course of the disease, undoubtedly suffice to distinguish it from these affections.

Pathology.—The pathology of the disease has been extensively investigated by Kaposi, Geber, Mikulicz, Frisch, Pellizari, Chiari, Cornil, and Alverez. Kaposi, in referring to his examinations, adds that, on cutting into one of the tubercles of rhinoscleroma, one is surprised at the ease with which the knife makes its way, taking into consideration the hardness apparent to the touch. The cut surface is of a pale-red color, uniformly and finely granular, and bleeds moderately. He further states that the epidermis and the rete are normal. The papillæ are longer, their connective-tissue framework exists only in the form of a delicately fibrillated, small-meshed network. Their vessels are scanty and small. This network of the papillæ is filled with small cells, closely packed together, the cellular infiltration, here and there extending deeply into the corium, being uniformly dense throughout the vascular stratum, and the papillæ also being crowded with cells. The cells are smaller, especially in the protoplasm, than the so-called granulation-cells. They are generally such as are met with in acute or chronic inflammation of the skin, and in places where a new growth of connective tissue is taking place. The nuclei of the round cells are small and refract light feebly, and are finely granular. The cells appear to be simply lodged in the delicate connective-tissue stroma of the papillæ and the upper layers of the corium, and can easily be removed by manipulation. They are, in addition, unimpaired, and have a sharp outline and distinct nuclei. The deep layers of the corium show a dense connective-tissue net-work. Kaposi concludes that the growth is most closely allied to the forms of small-celled or granulation sarcoma. Geber and Mikulicz, while they give the same anatomy for this growth, yet consider the affection a chronic inflammatory process.

Frisch, Pellizari, Chiari, Cornil, Alverez, and other histologists, believe it to be parasitic in nature.

Etiology.—The cause of rhinoscleroma is obscure. According to the observation of some histologists, just cited, it depends upon the presence of micro-organisms.

Treatment.—The treatment of this affection, although very unsatisfactory, becomes a necessity for temporary relief in respiration. Occlusion of the nostrils may be prevented, and the growth kept in abeyance by the use of such caustics as nitrate of silver, caustic potash, and chloride of zinc, or by the removal of part or all of the mass with the knife. The employment of sponge-tents, alone or medicated, in the nostrils, is also useful. The growth returns in time, however, notwithstanding the use of these and other agents. Lang* reports a most excellent result in a case from the employment of, first, salicylic acid, externally and internally, and subsequently the local use of carbolic acid.

Prognosis.—This is always unfavorable, as the growth recurs, even if removed. The disease becomes, of course, serious, if the obstruction of the nasal passages be sufficient to interfere with respiration.

LUPUS ERYTHEMATOSUS.

SYNONYMS.—Lupus erythematodes—Lupus superficialis—Lupus sebaceus—Seborrhœa congestiva—Scrofulide erythemateuse.

Lupus erythematosus is a new cell-growth of the skin, appearing in the form of one or more reddish, circumscribed, rounded, ovoid, irregular, and slightly elevated spots, covered with thin, grayish or yellowish adherent scales.

Symptoms.—The disease generally begins with one or more bright or dark red, circumscribed, rounded, and somewhat elevated spots, which have a shiny look, and a centre that is paler or slightly depressed, or covered with a thin adherent scale. The small primary lesions may be in size from that of a pin's head to that of a pea, and may be either single or multiple. If but a single spot appears, it develops by peripheral growth very slowly, the central depression at the same time enlarging and becoming more apparent. After the spot has attained the size of a small coin, the contrast becomes well marked between the somewhat elevated, red, advancing border, and the central depression. The small single spot may, in the course of months or years, gradually attain a considerable size, covering, for instance, the entire cheek. When there are more spots than one, they gradually approach one another and coalesce, forming one or more patches with well-defined margins. They usually exhibit a round or linear form, but may be irregular. Their configuration varies according to the part on which the morbid process appears. The bright or dark red color of the spots sometimes varies, the spots having also in some cases a translucent or gelatinous appearance. The slightly depressed skin within the peripheral margin has a white, shiny, almost cicatricial appearance, or else is covered with dry, thin, or greasy white scales, with or without yellowish-brown crusts. The elevated border also, which is from half a line to a line in breadth, has a firm feeling, is covered with similar scales or crusts, and the surrounding sebaceous glands are open and often filled with comedones. The amount of scales varies very much, being great in some cases and small in others. Upon removal they are found to be attached to glands which frequently appear distended and patulous. After a patch has attained a certain size, it may remain unchanged for months or years, but will eventually disappear, the border fading and undergoing the same atrophic change observable in the central part of the patch.

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* Wien med. Wochensch., June 16 and 23, 1883.

The morbid process may thus disappear entirely, and may leave either superficial or deep scars. When the scalp is involved, it will cause permanent loss of hair. It may persist in repeated attacks, sometimes during life, upon portions of the skin not at first affected. The disease is, therefore, of exceedingly chronic tendency. Its usual seat is the face. The nose, cheeks, eyelids, and ears are generally first invaded; and then the scalp, the back, the vermilion border of the lips, the hands, the feet, and other portions of the body may become affected. When occurring on the bridge of the nose and the cheeks, it may, in form, resemble a butterfly or a bat with extended wings.

There are usually no subjective symptoms, the only annoyance to the patient being occasioned by contemplation of the effects of the disease in the scars or loss of hair that may take place. In some extreme cases, however, there is a slight or severe, constant or intermittent, itching or burning sensation. The state of the health usually remains good, except in the more general form described by Kaposi, which is known as lupus erythematosus disseminatus.

In this last variety, which I have not as yet met with in my personal practice, the lesions are generally distributed over the body, even the mucous membrane of the gums and cheeks being sometimes invaded. The spots, which are in the form of nodules, do not show a tendency to spread peripherally, but increase by a continuous cropping out of new ones among the old. Rare cases have been reported in which the disease covered the entire body. The patches go through the same changes just enumerated for the ordinary variety.

This variety of lupus is accompanied by both local and constitutional symptoms, such as œdematous and painful swelling of the skin and tissues around the joints, and pains in the bones. There may be, also, a development of serous and hæmorrhagic blebs, adenitis, and erysipelas, especially that of the face, the patient sometimes passing into a typhoid condition, ending in death.

Diagnosis.—Lupus erythematosus is easily recognized, especially when the face is invaded, the diagnostic points being the location, the peculiar color and shape of the patches, the central scar, the absence of subjective symptoms, the chronic tendency, which should serve to distinguish it from every other skin affection. The diseases with which it is most likely to be confounded are lupus vulgaris, ringworm, eczema, and syphilis. From lupus vulgaris it is distinguishable by the absence of papules, tubercles, and ulcers, and by the involvement of the sebaceous glands, which are not affected in the former.

Lupus erythematosus seldom appears before the age of puberty, while lupus vulgaris may develop during childhood. The former usually also involves the upper part of the skin, the resulting scar, if any, being superficial, while the latter extends to the deeper structures, and there is a tendency to ulceration and disfiguring cicatrices. Ringworm, particularly that of the face, with its advancing border, may at times look like lupus erythematosus; but its rapid course, the presence of vesicles and papules, hair-stubble, and the detection of the parasite by the microscope show its distinctive character.

Pustular and squamous eczema may likewise bear some resemblance to lupus erythematosus, but the course of the former, the itching, exudation, the absence of the scarring and characteristic scales ought to be sufficient to prevent all error of diagnosis.

Syphilis is distinguishable from the disease under consideration by its history, course, its presence in other regions of the body, and by the absence of the thin, firmly adherent scales with their attachment to the sebaceous plugs.

Pathology.—Recent investigations have shown that lupus erythematosus is a chronic inflammation of the cutis leading to its degeneration and atrophy. It was thought at one time that the inflammatory process originated in or around the sebaceous glands, which is often, no doubt, the fact; but in very many persons the disease may affect all structures of the skin, and may have its primary seat in any of them. Hebra was the first to point out the involvement of the glands as the most essential characteristic of lupus erythematosus. Neumann, Geddings, and, at a later period, Kaposi, by a careful study of the disease, not only confirmed Hebra's views, but, in addition, specified the successive steps of the inflammatory process. Kaposi and Thin have shown that the disease could also have its seat as well in the sweat as in the sebaceous glands. Geber, Stroganow, and Robinson assert, in addition, that the disease may have its origin in any of the structures of the skin. The microscopic examination of portions of skin affected with lupus erythematosus indicate some inflammatory changes of one or other of the structures of the skin. The glands are thickened, both by an increase of connective tissue and by an accumulation of cells, externally and internally. According to Robinson, the blood-vessels are dilated, and the surrounding connective tissue is infiltrated with embryonic cells, the affected portion being filled with small-celled inflammatory new growth, acquired from both the vessels and the connective-tissue cells of the part. The changes take place in either the superficial or deeper parts of the corium, and the result is seen in the proliferation of the gland-cells developing seborrhœa, and in the infiltration and desquamation of the epidermis. The course of the morbid process will, from this stage forward, vary in different cases, the inflammatory action sometimes terminating, absorption setting in, the integument returning to its natural state, without leaving any evidence of the disease upon the affected part. The tendency in most cases, however, is for the inflammation to cause degenerative changes, leading to atrophy of the affected tissue. The hair-follicles and glands may be destroyed, resulting in cicatricial atrophy of the part affected by the disease.

Etiology.—Lupus erythematosus, which is a rare disease, generally occurs as the result of a defective state of the general nutrition. It is no doubt met with occasionally in those who are in comparatively good health, but the majority of those affected are poorly nourished, chlorotic, or tubercular. While persons of all temperaments may be attacked, yet the disease is more frequently observed in those having light skin and hair, who are especially liable to an irritable condition of the sebaceous glands. A scrofulous state of the system will thus be seen to be a predisposing cause of its production. Kaposi has pointed out that a severe local seborrhœa is, in some cases, the active cause of it. It occurs more frequently in women than in men, and rarely appears before the age of puberty.

Treatment.—The first indication in the treatment of this disease is to counteract the constitutional impairment, if any exist, that has led to its development, and that keeps up the inflammatory process. There is no internal remedy that has any special curative effect upon the disease, but general hygienic attention, with a nutritive and tonic treatment, combined with the proper local measures, affords, beyond all doubt, the best results. Cod-liver oil, alone or with iodine, iron, arsenic, and phosphorus, may be used with benefit. Iodide of starch, recommended by McCall Anderson, can be taken in teaspoonful doses in milk or malt. Iodoform has been administered by Besnier, in doses of from eight to fifteen grains daily, with the effect of curing several patients. Potassium iodide or potassium chloratis, in doses of from five to ten grains, three or four times a day, may also be used at times with advantage. It is also important to employ external treatment in order to cause the absorption or destruction of the lupus patches. Great care should be exercised, in applying local measures, to not add to the disfigurement of the part occasioned by the disease itself. It should be remembered that, while the disease usually leaves, through treatment, scars, and sometimes telangiectases, it may disappear spontaneously, leaving the skin in its normal condition. The mildest methods should, therefore, first be exhausted in the endeavor to eradicate the disease. If more radical means be required, they should be continuously employed, and the moment the patch shows signs of yielding to such treatment, by becoming pale and on a level with the surrounding skin, the milder applications should again be resumed. Resorcin has been recommended, fifteen grains to the ounce, applied once or twice a day, and the parts afterward covered with an India-rubber mask.* One of the most useful applications is the mercurial plaster, from which Kaposi has obtained some unusually good results. The copper oleate plaster also I have used several times, with the effect of removing the patches. The various mercurial ointments are also beneficial, but the ointment of oleate of mercury, of a five- or ten-per-cent strength, has been found the most valuable of all of them. I have had the most satisfactory results from depleting the parts twice or three times a week with a small needle-knife, and applying constantly to them the ointment of zinc oleate. Kaposi, Veiel, Squire, and Vidal, all speak well of manifold scarification or puncturing, which has a similar effect to that just recommended. Sapo viridis is a valuable remedy, applied on a cloth to the patch, or rubbed into the part once or twice a day, especially when the disease involves a part covered with hair, as the scalp and the face, when covered with hair or a beard. It can be used alone or with water, or, much better, mixed with equal or less than equal parts of alcohol. The thorough rubbing of it into the patch not only stimulates the part, but also removes all the scales, and cleanses the surface for any additional treatment. Zinc, bismuth, or ointment of lead oleate, or any simple ointment or lotion, may then be advantageously applied as an after-dressing. Chrysarobin, pyrogallic acid, or naphthol, in amounts of from ten to fifty grains to the ounce of some fatty substance, all form ointments that have been successfully employed. Carbolic acid, applied in the form of an ointment, ten to twenty drops to the ounce of fatty substance, often proves serviceable. Tar and its preparations, used alone in the form of an ointment or mixed with alcohol or green soap and sulphur, has been found to do well in some cases. Sulphur, either alone or suspended in alcohol, glycerine, or some other oily matter, acts sometimes remarkably well. Iodine is likewise especially useful, in the form of tincture, or as the glycerine of iodine, as recommended by Hebra and Anderson, or as the compound iodine ointment. The application of the ointment of silver oleate has been attended with good results in several cases occurring under my own observation. If the measures already detailed do not suffice, and the disease obstinately persists, more radical measures will then be demanded. Pure carbolic acid may now be applied with advantage, lightly pencilled over the surface, according to the indication, or a solution of caustic potash, one drachm to two of water. The latter application should be made, with a piece of absorbent cotton or charpie, every three or four days, care being taken not to allow the lotion to penetrate too deeply into the parts, and to neutralize its action after the operation by pencilling diluted acetic acid over the surface. Glacial acetic acid, strong liquid ammonia, arsenic, pure, or in the form of the ointment of the oleate, zinc chloride, silver nitrate, chromic acid, sulphuric, nitric, and hydrochloric acids, the acid nitrate of mercury, and solution of sodium ethylate, are all valuable caustic applications, any of which may be employed, but always with great caution. In using any of these caustic remedies, the part should immediately afterward be dressed with some soothing lotion or ointment, and as soon as possible recourse should again be had to the simpler remedies first mentioned, until the cure is effected. Erasion, with the dermal curette or spoon, have been successfully used by Dubin, Neumann, Auspitz, and many others, especially in some of the more obstinate cases. The actual cautery and the galvanic cautery have also been employed in many cases with the most beneficial results, the eventual scar often being very slight. Piffard resorts to surgical procedure in case the patch is small and conveniently situated, excising some of the surrounding healthy integument with the morbid tissue.

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* British Medical Journal, May 15, 1886, p. 956.

Prognosis.—The prognosis of the ordinary form of this disease is good. The disease may be protracted, often becoming obstinate and apparently unyielding, or liable to relapses; but the ultimate result is the restoration of the part to recovery, usually with scarring or loss of hair. In the disseminated or general form of the disease the prognosis is not so favorable, many cases terminating fatally.

LUPUS VULGARIS.

Synonyms.—Lupus exedens—Lupus vorax—Noli me tangere—Fressend Flecte—Esthiomène—Dartre rongeante—Scrofulide tuberculeuse.

Lupus vulgaris is a new cell-growth of the skin and adjacent mucous membranes, appearing in the form of variously sized and shaped reddish or brownish spots, consisting of papules, tubercles, or infiltrations, which are removed by interstitial absorption, or by ulceration and cicatrization.

Symptoms.—This disease commences with the appearance of many small discrete or grouped, reddish, brownish, or yellowish-red spots, from the size of a pin's head to that of a pea or a bean, deeply seated in the true skin. These well-defined spots, situated beneath the epidermis, through which their color is observable, give to the skin a punctated appearance. In the early stages of the disease they are not sensible to the touch, which merely causes them to assume a lighter color. In the course of some months they slowly increase in size, and gradually approach the surface of the skin, until finally they become evident as papules and tubercles, through both appearance and palpation. They usually present themselves in large numbers and of sizes within the range already indicated. Their color is brownish-red, with surfaces either rough or smooth, sometimes more or less covered with shiny, whitish epidermis. Through their mass, exteriorly and interiorly, they are permeated with small blood-vessels. They may be either soft or firm to the touch, and are not painful. The lesions may, at this stage, remain discrete, or unite and form flat or prominent infiltrations of greater or lesser extent, usually of a circular or serpentine form. Having reached this stage of development, the lesions, sooner or later, undergo either absorption, leaving behind a desquamating and more or less atrophied skin, constituting what is known as lupus exfoliativus, or else disintegration and ulceration of the infiltrated skin occur (lupus exulcerens, lupus exedens).

The lupoid ulcerations, which are painless, may be superficial or deep, and in appearance are usually flat, rounded, or irregular, with reddish, soft, but well-defined margins. There may be a moderate purulent secretion, with crusting, and when the base of an ulcer is exposed it is red, smooth, or covered with granulations, and easily bleeds. During the course of the ulceration, or as healing begins, papillary outgrowths may occur, lupus hypertrophicus, followed by more or less of warty, cicatricial tissue, lupus verrucosus. The forms of lupus just mentioned are merely degrees of one and the same process, which may be arrested or modified during its course, resulting in some special variety of the disease. The affection, however, frequently presents at the same time several kinds of lesions; that is to say, the same region may present various phases of evolution and involution of the disease. The disease, under such circumstances, presents a most striking and characteristic appearance, there being often, at one point, the small primary spots, at another papules and tubercles unchanged, or else undergoing the process of absorption or ulceration, with here and there scales, crusts, exuberant granulations, cicatricially atrophied spots, commingled with areas of unaffected skin. Lupus may occur upon any region of the body, but its common and favorite seat is the face, especially the nose, cheeks, and ears. It may appear also on the trunk and extremities, either in connection with or independent of the development on the face.

The vulvo-anal region is occasionally involved. Macdonald* and Isaac E. Taylor† recite some interesting cases, and the latter adds that the deformity and disfigurement resulting from the ulceration and cicatricial contortions are greater and more disgusting than the corresponding changes in the face resulting from this disease.

The mucous membrane may be invaded and the cartilage also, either primarily or from its extension from the affected skin. In attacking the latter parts, those most frequently affected are the mucous membrane of the eye, mouth, and throat, and the cartilage of the ear, eye, alæ, and septum nasi.

Lupus, when involving the mucous membrane, is not very apparent in the early stage of the disease, as there is no evidence of its presence in the peculiar eruptive spots, as in the case of the skin. The mucous membrane first attracts attention through the fact of its being reddened with spots about the size of a pin's head, somewhat prominent and closely packed together. The patch may be firm to the touch, excoriated, easily bleeding, and appear, at different points, of a silvery-gray color. Later, the patch may become more irregular, the color more gray, or opaque. The thickened epithelium desquamating, there remains an inflamed superficial or else a deep-fissured or an ulcerated surface. Gradually these conditions disappear, and there remain simply scars that may have a shining and silvery-gray appearance. On the other hand, the patch may be depressed, from being bound down to the underlying tissue, or secondary inflammatory infiltration may develop, leading to suppuration, abscesses, and ulceration of the part, attended with cicatrization. The destructive action of this disease, therefore, occasions unsightly scars and considerable deformity upon whatever part of the body it may occur. It is not usually attended with subjective symptoms in its earlier stages, but in the course of time pain may be present, especially if ulceration have set in, and the surface be exposed to atmospheric changes, to movement of the part, or to friction of the clothing.

Diagnosis.—The principal points, sufficing in most cases to establish the diagnosis of the disease, are its occurrence early in life, the existence of primary eruptive spots, their development into papules, tubercles, and ulcers, the chronic course of the disease, and the attempt at repair in the shape of unsightly cicatrices. The affections which are liable to be mistaken for it are syphilis, epithelioma, and lupus erythematosus. From syphilis it can be distinguished by the previous history and the rapid development and characteristic grouping of the lesions in the former affection. The tubercles, however, in both diseases resemble each other, and between them it is often most difficult to distinguish. The tubercles of lupus develop slowly, being generally confined to one region of the body, as the face, and are flatter and softer than in syphilis, and of a brownish or yellowish-red color, covered with thin scales; whereas, in syphilis the tubercles develop rapidly, appearing upon several portions of the body at the same time, and they are round, hard, larger than in lupus, and of a coppery hue. The ulcerations in lupus are, on the contrary, very different from those that are met with in syphilis. They are generally round, sometimes irregular in shape, and are not so excavated, and the margins not so infiltrated and painful as those of syphilis. Lupus ulcers usually occur at several points, and tend to coalesce, while in syphilis, if more than one ulcer be present, they generally remain apart. The edge of the lupus ulcer is dull-red, non-everted, and the secretion is slight, but not foul, and if there be crusts, they are reddish, brown, and scanty. On the contrary, the edge of the syphilitic ulcer is sharply cut and everted, the secretion copious, foul, and the crusts which are usually present are greenish and abundant. Lupus ulcers, as indicated, develop with relative slowness, and are attended with ugly scars and deformities; whereas, syphilitic ulcers appear and run a rapid course, the resulting cicatrices being smooth, white, superficial, and not unsightly.

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* Edinburgh Medical Journal, April, 1884.

† American Gynæcological Transactions, vol. vi, p. 199.

Lupus may also be mistaken for epithelioma, but the history, appearance of the lesions, and the course of the diseases, are altogether different. Lupus generally begins in childhood, and is seldom attended with subjective symptoms. Epithelioma usually occurs late in life, and is frequently painful. In lupus, moreover, there are several or many nodules, which are soft, whereas in epithelioma the nodule is single, and is particularly hard. Furthermore, it must be remembered, lupoid ulceration is superficial, the margin non-everted, not hardened, the surface covered with a bright-red granular tissue, and there is a tendency to repair, ending with cicatrices. Ulcerated epithelioma, on the contrary, is usually deep, the margin everted, hardened, undermined, the surface fungoid; there is no attempt at the formation of cicatrices; the adjacent glands are usually involved. Lupus, likewise, is more slow in its development than epithelioma, and rarely affects the general health, whereas epithelioma is relatively more rapid, and generally attended, sooner or later, with constitutional impairment. It should, however, be borne in mind that the two diseases occasionally appear upon the same surface. Lupus does, moreover, in rare cases, at certain points degenerate into epithelioma.

Lupus erythematosus can scarcely be confounded with the disease under consideration. The development of the former only after puberty, the appearance of reddish, circumscribed, slightly elevated patches, covered with thin, grayish, or yellowish, adherent scales, the involvement of the sebaceous glands, and the absence of papules, tubercles, and ulcers, should suffice to differentiate it from the latter disease. Rosacea may in some cases resemble lupus in certain respects, but its history, course, color, and the presence of dilated vessels, acne papules, and pustules, readily serve to distinguish it from the latter disease.

Pathology.—The pathology of lupus vulgaris has been investigated by very many physicians, and its relations to tuberculosis and other affections, frequently the subject of debate, are still unsettled questions. Friedlander and Koster assert that they have shown the morphological identity of this disease with tuberculosis, but the characteristic tubercle cell is observed in gummata and other morbid processes. While the subcutaneous inoculations of animals with lupus tissue have at times been unsuccessful in the production of tuberculosis, yet Leloir * has, by injecting the virus into the anterior chamber of the eye, beneath the peritonæum, or into certain other places, brought about either local or general tuberculosis.

Similar results from the inoculation of lupus matter have also been reported by Koch, together with the detection of bacilli in seven cases, he claiming to have produced indubitable tuberculosis in those cases by means of the inoculation of the culture-fluid.

Doutrelepont also reports the presence of the bacillus, from culture and inoculation; while Leloir and Cornil have not, according to the former, as yet succeeded in the discovery of any form of microbe belonging to lupus. The question of the relation, if any, of these two affections, lupus vulgaris and tuberculosis, requires, therefore, more research definitely to settle it beyond all doubt. While the views respecting the pathology of lupus vulgaris are still at variance, yet all modern investigators agree at least in this, that the morbid process appears as a chronic inflammation, and consists of a small-celled infiltration, having its primary seat in the corium, and spreading secondarily to all the layers of the integument.

According to the most recent researches of Kaposi, Lang, Stilling, Thin, Jarisch, and others, the blood-vessels act the chief part in the genesis of the lupus infiltrate. A microscopic examination of one of the more deeply seated nodules of recent origin will show that the delicate network of connective tissue proper to the skin contains a small-celled infiltration, the cells being gathered together into a nest-like formation in the lower portion of the corium, the upper or papillary layer above them, and the rete appearing normal. The nest will also be found surrounded with a dense layer of connective tissue, and to be sharply defined from the normal corium in which it is embedded. The cells, which are very small, contain numerous highly refractive nuclei, which can be stained by carmine. These nest-like accumulations of cells have no firm connection with the network in which they lie, and part or all of them may lose form, even during the short time of preparation for microscopic examination, leaving in the connective tissue empty spaces and many blood-vessels. In the further development and retrogressive metamorphosis of lupus vulgaris is produced a most complicated change, both in the lupus tissue and in all the elements of the skin. In respect to the nodule itself, after it has existed for a greater or less length of time, retrogressive changes begin in its centre. The vascular supply being interfered with by the cell-growth, fatty degeneration ensues, and the larger part of the nodule is absorbed or thrown off. A part, however, organizes into connective tissue and undergoes contraction. While the solitary lupus nodule undergoes the changes just described, the morbid process usually becomes more extensive in its ravages. The infiltration extends along the vessels beneath the papillæ, as well as those ascending into it, until, meeting with like spreading growth, the whole of the affected part is crowded with the small cells above mentioned, and the areas involved undergo, in the same way as with the single nodule, fatty degeneration and absorption, with cicatricial contraction of the skin. In some persons chronic inflammatory changes occur in the affected connective tissue, and the papillæ, becoming hypertrophied, lead to lupus verrucosus. According to Kaposi, the epithelial structures are in this disease early affected. As the infiltration passes down and involves the papillary layer, proliferation and degeneration of the rete cells occur, and, when the latter are destroyed by suppuration, the lupus lesions are exposed and ulceration follows. At an early stage, as the disease spreads, it affects the hair-follicles and the glands of the skin, causing hypertrophy and degeneration of the epithelial lining. The hairs, therefore, fall out in consequence of the atrophy of their papillæ, and many of the sebaceous glands are cut off from communication with the surface, the dilated glands appearing as milium corpuscles. At times there are outgrowths of the epithelium which pass down into the corium, and which, uniting with similar growths in the root-sheaths and sweat-glands, develop an epithelial network, described by Kaposi, which may form the histological basis for the production of epithelioma.

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* Le Progrès Médical, October 4, 1884.

Etiology.—The cause of lupus vulgaris is somewhat doubtful. It is known that it develops during childhood, and rarely after puberty, unless some sign of the disease, evident in the form of scars, had previously appeared. It is neither congenital nor hereditary, and occurs in about equal proportions in both sexes. It is a rare affection in the United States, but is much more common in certain European countries, as in Germany, Austria, and France. It is asserted by some observers to be owing to syphilitic, by others to scrofulous taint; and by others again, to tuberculous taint; while many hold that it is a disease of its own kind, with an unknown cause. Abundant clinical experience has shown the error of associating it with syphilis, for the reason that the history and course of the two diseases have nothing in common, and that syphilitic treatment has usually no influence on lupus. As to its relation to scrofula and tuberculosis, no one can deny that many cases of lupus have associated with them the elements of either one or the other of these affections.

That it is an expression of scrofulous diathesis is held by Piffard and others in the United States, and by many observers in France, England, and Italy. Friedlander, too, and many others consider the disease a local manifestation of tuberculosis. Doutrelepont, of Bonn, who believes that lupus vulgaris is a tuberculosis of the skin, has given the result of his researches in several able articles. The presence of the tubercle bacilli in lupus tissue has been recently reported by Koch, from cases examined by him. Benson, of Dublin, also has reported* some interesting experiments, showing that granulations, taken from the conjunctiva of a child and inoculated into the eye of a rabbit, developed tuberculosis of the cornea and iris of the animal. At the Dermatological Session of the International Medical Congress at Copenhagen, Doutrelepont read an interesting paper† on the subject, citing in support of his opinion the histological structure of the lupus tubercles, and mentioning the presence of the bacillus, which he had found in many cases, culture and inoculation experiments having yielded good results, and stating that the clinical course of the disease was in favor of the view of the intimate relation between lupus vulgaris and tuberculosis. Most of those who took part in the discussion that followed coincided with this observer, and many additional facts were produced in support of the same view. Kaposi, who believes with Hebra and others that the disease is *sui generis*, in replying, rejected unqualifiedly the opinion that lupus is tuberculosis of the skin. He did not deny the presence of the bacillus in lupus, which he had seen, and to which he attached no importance. He spoke to the point of the course of the disease, of which he had seen twelve hundred cases, which he deemed in no way corresponding to our notion of tuberculosis of the skin. In support of his view he also showed some drawings of true tuberculosis of the skin, an exceedingly rare disease, and the ulcers there depicted were in no way, I am certain, like those of lupus. Leloir also opposed Doutrelepont's view, and reported that Cornil and himself had, after extensive investigation, succeeded in finding only one single bacillus, and that was in an individual decidedly phthisical. Pick, of Prague, thought at that time that lupus was a form of tuberculosis of the skin. Haslund * pointed out at a later date that, while many lupus patients die from tuberculosis, yet, if lupus is tuberculosis of the skin, it is a form of the latter disease which has not hitherto been known as such in a clinical sense. The experience of the largest number of observers, no doubt, goes to show, at the present time, some relation between lupus † and tuberculosis, although the former disease appears in many who are in apparently good and often vigorous health. In 1883, of thirty-eight cases of lupus at the Hospital St. Louis, eight had well-marked signs of phthisis. In my own experience I have seen two women, to all appearance healthy, both well developed, have lupus vulgaris, and both die of tuberculosis, one in six months, the other in about fifteen months, after lupus on the face had been cured. A woman, recently operated on for lupus of the face at the Skin Hospital, shortly afterward had cough and all other constitutional evidence of the development of tuberculosis of the lungs. She is still living, and under observation at the present time.

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* British Medical Journal, January 17, 1885.

† Transactions of the International Medical Congress, Copenhagen, Denmark, 1884.

Treatment.—Lupus vulgaris is a stubborn and troublesome affection, and sometimes resists the very best treatment in the most skilful hands. It requires both well-directed and persistent measures for its successful treatment. In the first place, it is important that the hygienic surroundings should be suitable and in the best possible condition. The patient should be properly clothed and the sleeping-apartment well ventilated. Bathing, active or passive exercise, plenty of fresh air and sunshine, and all other hygienic measures that add to general health and vigor, are of great value. A change of climate, also, if practicable, will often assist in causing some of the most obstinate cases to yield eventually in a satisfactory manner. It is essential to employ both constitutional and local treatment at the same time, the former to act against and remove the source of the disease, and the latter to destroy, or at least to cause to disappear, the existing lupoid tissue.

Constitutional Treatment. — As many lupus patients are pale, anæmic, scrofulously or tuberculously inclined, and perhaps have not been receiving the proper kind of food, such indications suggest a good, nutritious diet. Animal food, with a large amount of milk, and in the case of adults a moderate amount of stimulants, are often most suitable. Cod-liver oil, in full doses and long continued, either alone or in combination with other preparations, is perhaps the most efficacious remedy that can be employed, especially for the class of patients mentioned. Malt is also a beneficial remedy.

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* The Medical Bulletin, November, 1884.

† See interesting paper by Dr. Walter Smith, on Lupus and its Treatment, read before the Academy of Medicine of Ireland. British Medical Journal, January 17, 1884.

Beisner and Neisser both report good results from iodoform, which can be given in from one half to one grain, in pill-form, three times a day. Potassium chlorate, the chalybeates, and phosphorus, alone or in various combinations, particularly for the class of cases mentioned, are most valuable. The alimentary canal should always receive attention, and any weak digestion be regulated. In the latter contingency, an occasional aperient or purge, followed by mineral acids and bitters, is often most beneficial. Robust and well-nourished individuals often do well under potassium iodide or iodine. Sometimes small doses of one of the mercurials act in the most happy manner by hastening the absorption of the lupus tissue.

Local Treatment.—The employment of local measures is important in effecting the absorption or the destruction of the existing lupus tissue, and in averting any complication or secondary change. In selecting the most suitable applications, it is important to take into consideration the stage and variety of the disease, for the employment of too active measures often tends to stimulate the morbid process and enlarge the patch. In the earlier stages, local depletion with the small needle-knife may be employed for the purpose of bringing about absorption; a method which I much prefer to that of multiple scarification, as proposed by Volkmann, and modified by Dubini, Squire, and others. The sharp point of the knife, in the hands of a skilful operator, can be rapidly passed to the required depth into the diseased tissue, with a more satisfactory result than that secured by the use of any edged blade, which necessarily goes through normal as well as abnormal skin at the same time. The operation may be repeated every three or four days, the parts being allowed to bleed freely from the application of warm water, thus lessening very much the congestion of the patch. A mild mercurial ointment, the white precipitate, calomel, or the oleate, can be used as an after-dressing. Auspitz has recommended puncture combined with the introduction into the lupus nodule of iodized glycerine; to be followed by the introduction of a caustic conveyed by means of a rubber pipette attached to a hypodermic syringe needle. Vidal speaks well of the value, in the earlier stages, before ulceration appears, of frictions over the part, every three or four days, of oil of cashew-nut. Iodine and glycerine, or carbolic acid, the latter in moderate strength, are often useful, painted over the part. Jequirity, as I have pointed out, is especially efficacious, though occasioning considerable inflammation and destruction of the lupus tissue, and recently Drs. Smith Townsend and Hamilton * report a good result, in an old case of lupus of forty years' standing, from the application of the alveloz, a newly discovered South American plant which acts in a similar manner to jequirity.

The mercurial as well as subiodide of bismuth plaster will also now and then exercise a beneficial influence. The ointments of tar, naphthol, salicylic acid, chrysarobin, and iodoform have been advantageously employed in some cases. Good results can often be obtained in ulcerating spots by covering them with powdered red cinchona bark, which will be found particularly efficacious, or with iodoform. If the patch show no signs of yielding, if fresh tubercles continue to appear, and there be every evidence that the disease is spreading, then there is no alternative but to cauterize, either with certain chemical substances, with the actual or with the galvano cautery, or to treat the part by erasion, alone, or in conjunction with the measures just enumerated.

Cauterization, when used, should be made once or twice a week, or repeated at such intervals as necessary, until all evidence of the disease has disappeared. Sodium ethylate solution is no doubt one of the most powerful and active remedies that can be used. Pencilled lightly over the surface, it penetrates deeply, destroying the morbid tissue and leaving a black and burned surface, more or less covered with serum, which it rapidly abstracts from the parts. Pyrogallic acid likewise possesses the power of deep penetration, analogous in this respect to sodium ethylate. It has the additional advantage of acting only upon the diseased tissue, the normal skin around it being in no wise affected by its application. It may be used in the form of an ointment, one or two drachms to the ounce, and the application renewed every twenty-four hours. In the course of three days or more, the surface becomes black and covered with inflammatory products, which can be removed by a poultice, or oil, and the part dressed with a soothing ointment. There may be pain from this application, particularly about the third day, but it is not severe. The application may have to be repeated three or four times, and the resulting scars are found smoother and better than from the use of many other remedies. Caustic potassa is also a powerful cautery that may be applied to the lupoid tissue, either in the solid form, with a pair of forceps or with a piece of wood, or as a solution. The solution may be made of equal parts of caustic potash and water, or of one to three drachms of caustic potash to the ounce of water, applied over the surface with a camel's-hair brush or with cotton charpie. Vienna paste, which consists of equal parts of caustic potassa and lime, with a sufficient quantity of alcohol to blend them into a proper mass, can

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* New York Medical Journal, January 31, 1885.

be applied instead of using the caustic potassa alone. The pain from the application of caustic potash, either in solid or solution form, is often very severe, and to lessen it, acetic acid, a neutral ointment, or a poultice, should be applied immediately after cauterization. A dressing of iodoform, then applied over the surface, and allowed to remain for several days or a week, often assists in completing the destruction of the diseased tissue.

Arsenic is also a valuable caustic that has been long and favorably used in certain cases. It is an exceedingly painful application, but it has the property of acting only upon the lupoid tissue, leaving the healthy skin unaffected. Arsenic oleate, one half drachm to one drachm to the ounce of any fatty substance, is the best method of employing it. This compound should be thickly spread on muslin or linen, and applied directly to the part for a period of two or three days, the application being renewed every twenty-four hours. The pain, which is very great after the first day's application, can sometimes be lessened by adding a few grains of the extracts of opium and belladonna to the ointment. There may also be, in addition to the pain, a swollen and œdematous condition of the parts, but arsenical poisoning has never been known to occur from the application either of this or other forms of arsenic to limited portions of the integument. After the removal of the dressing the lupus nodules will be found to have been destroyed, the spots to have been cauterized a gray or brownish-black, and to be covered perhaps with pus, the adjacent portions of healthy skin being unaffected. The nitrate of silver, either as a concentrated solution or in the form of the solid stick, may be used as a mild and safe caustic. It is a most suitable application to the skin and to the mucous membrane also, when involved. The pain from its employment is not great, and it leaves moderate, smooth, white scars. A most convenient way of applying it is by means of the solid stick, which can be pushed over the surface and bored into all the papules, tubercles, and deep spots, coagulating the albumen of the parts. It easily penetrates into the lupoid tissue, but only to a limited depth, its action being superficial. Cauterization with it should be made once or twice a week, with a soothing dressing applied at once to the parts. Silver oleate, one or two drachms to the ounce of a fatty substance, is also a valuable caustic application. Zinc chloride is frequently employed, and is well adapted for its caustic effect, used either alone in the form of a stick, or with water, alcohol, or with other caustics made into a paste. The objections to its use are that it is not deep in its penetration, will not coagulate the blood, which often flows, interfering with further cauterization, destroys healthy as well as morbid tissue, and occasions the most severe pain. Hebra employed this caustic made into a paste in the following manner: Two drachms each of zinc and antimony chloride are rubbed up in a mortar with sufficient strong hydrochloric acid until the former is completely dissolved. Powdered licorice is then added in such quantity as to form a thick, tenacious paste. The prepared zinc paste is spread quickly on linen and applied in strips for twenty-four hours. On removal of the strips, the skin that has been covered has become changed into a yellowish or brownish eschar. In applying chloride of zinc alone or as a paste, or any preparation of similar action, the surrounding healthy skin should always be protected by strips of adhesive plaster, or some neutralizing agent, the latter, when necessary, being used on the part if it be wished to arrest the action of the caustic, and a suitable after-dressing should be at once employed. The acetate of zinc, acid nitrate of mercury, glacial acetic acid, chromic acid, and carbolic acid are likewise all useful preparations that can be employed as caustics.

The actual cautery and the galvano-cautery have both been employed, often with decided success. Hutchinson and Anderson speak most favorably of the former, and Hebra, Kaposi, Neumann, Piffard, and others have had good results from the latter. The patient is usually placed under the influence of an anæsthetic, although the operation can be performed rapidly, by means of suitable instruments, with either cautery without this procedure, experiencing only a moderate amount of pain. There is considerable inflammatory action following the operation, which subsides in a few days on the use of an ordinary water-dressing. All the lupus tissue may be destroyed in one operation, but sometimes the operation requires to be repeated.

Excision of the offending tissue is the most radical means of treatment. It is proper to resort to this only in the case of lupus patches of comparatively small size, and plastic operations often become necessary. The resulting scar is usually very great, often markedly disfiguring, and the disease may reappear even in the transplanted skin. The treatment by erasion, or scraping with a sharp spoon or a dermal curette, as recommended by Volkmann, yields far better results than excision does. By means of this instrument only the diseased tissue is bored or scraped out. The pain attending the operation is often very great, and can be avoided by etherizing the patient, or lessened by freezing the part. The part should always be dressed with a soothing application, and the resulting scars are sometimes less disfiguring than those from the other measures already described. As it is almost impossible to reach with any instrument all the new growths in the tissues, it will always be safer to apply, after the erasion, some one of the caustics already named, so as thoroughly to destroy, if possible, all the remains of the disease. An instrument having an effect similar to that of the curette, but much more radical in its action, is the double-threaded screw used by Malcolm Morris. I witnessed the successful use of this instrument upon several cases of lupus in St. Mary's Hospital, London, the operator passing it rapidly into the lupus nodule, which it bores out, leaving the usually healthy external integument, thus avoiding scarring to any great extent.*

Erysipelas, caries, necrosis, and other complications that may arise, should be managed upon general principles.

Prognosis.—As regards the general health of the patient, the prognosis is usually favorable. In the majority of cases, notwithstanding its long and persistent course, the patient enjoys the best health. Occasionally, individuals having the disease die from tuberculosis of the lungs. The tissue can sometimes be restored to health, although it may be obstinate for some length of time and yield very slowly to the best treatment. Relapses are of frequent occurrence, and often set in when the disease is thought to be under perfect control. The more localized the disease, the more amenable is it to successful treatment, and likely to reach a favorable termination in cure. The scars following, whether of the integument or the joint, generally lead to marked disfigurement.

SCROFULODERMA.

Until within a comparatively recent period the term scrofuloderma was erroneously employed to designate all affections of the skin occurring in persons of scrofulous diathesis. It is, however, now generally admitted that the various forms of erythematous, vesicular, papular, and pustular eruptions that are occasionally developed during the progress of scrofula are merely incidental complications, not essential symptoms of that disease. The only cutaneous lesions that are characteristic of scrofula are those which were formerly described under the title of scrofuloderma phlegmonosum, or ulcerative scrofuloderm, and which are the secondary results of scrofulous involvement of the subjacent lymphatic glands. They usually occur upon the face and neck, but they may also be observed upon the chest and back and other portions of the body. They are preceded by hardening and enlargement of the lymphatic glands, the glands frequently attaining the size of a large walnut and becoming slightly sensitive to the touch. After a variable period of several weeks or months, they begin to soften and disintegrate, and the overlying skin assumes a reddened and then a violaceous color, becomes perceptibly thinned, and more or less inflamed and painful. Fluctuation finally becomes pronounced, and one or more small openings appear on the surface of the tumefied glands, from which more or less thin, unhealthy, sanious pus exudes. These openings gradually increase in size and result in the destruction of the integument and the formation of a deep, unhealthy-looking ulcer, covered by a thin and firmly adherent brownish, yellowish, or grayish crust, under which disintegration of the glandular structure rapidly progresses. The formation of pus does not cease, however, and the crust breaks open from time to time. The ulcer grows slowly and imperceptibly deeper and involves the subcutaneous cellular tissue. Its base is irregular, granular, and covered with pus and cell *débris*. Its edges also are irregular, and are undermined, and possess the characteristic purple color. It ultimately, but very slowly, tends to heal by granulation and cicatrization, forming irregular and reticulated, puckered-up, unsightly scars, which are long subsequently perceptible on account of their red and purplish aspect, finally becoming white and glistening. Extensive ulceration may not always take place, but the characteristic violaceous color of the skin is for some time apparent, and an unsightly atrophied scar may form over the apex, or centre, of the swelling. The scrofulous ulcer may, however, take on unfavorable action and in crowded hospitals give rise to what Lebert and Guersant have described as scrofulous gangrene. This form of gangrene is non-contagious, and may occur without affecting other scrofulous patients in the same wards. It is accompanied with gastric trouble, anorexia, diarrhœa, and febrile symptoms. The ulcer becomes red, inflamed, intensely painful, and increases rapidly in size. If cicatrization has begun, the ulcer breaks down again, and its surface becomes covered with blood and pus drying into thick, firmly adherent, dark-red or brown crusts. Extensive phagedenic ulceration of the subcutaneous connective tissue and the adjacent muscles and tendons may take place beneath the crusts. The resulting odor is offensive, but not so foul as in ordinary gangrene. The destructive process ceases, as a general rule, in eight or ten days. New and healthy granulations then appear and cicatrization rapidly ensues. In superficial scrofulous ulcers this gangrenous action is of little consequence.

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* The Medical Bulletin, September, 1884, p. 216.

Diagnosis.—Phlegmonous scrofuloderma can readily be recognized as such by its situation on the face or neck, its concomitant scrofulous lesions, and the tumefaction of the glands, to which, if violaceous color be added, no doubt can remain as to the nature of the disease. Its chronicity and color readily distinguish it from simple ulcers of traumatic or idiopathic origin, while its purple tint, irregular shape, and intractable nature, will readily help to distinguish it from the ulcerations of tertiary syphilis. The ulcerations of congenital syphilis may, in truth, present a superficial resemblance to those of scrofula, but the age of the patient should assist in making a correct diagnosis, as true scrofuloderm is rarely, if ever, found in young children.

Pathology.—The lesions of scrofuloderma are secondary to scrofulous involvement of the lymphatic system. The affected glands become infiltrated with lymph-cells and giant-cells, and are enormously increased in size. The pressure of the new cells gradually produces more or less obliteration of the minute capillaries and lymph-spaces, followed by various inflammatory or degenerative changes in the tissues that are deprived of nutrition. Ordinarily the glands become dotted with cheesy nodules, which gradually undergo softening or liquefaction. In some cases the product of liquefaction is absorbed as soon as formed, and the gland gradually decreases in size. Usually, however, suppuration is excited in the adjacent tissues, and a cavity containing pus is formed. The inflammation then extends through the various layers of the skin, resulting in the destruction of the epidermis and corium, and the production of a typical scrofulous ulcer.

Etiology.—Scrofula may occur in either sex, and in all races. It may be inherited or acquired, but it rarely manifests itself before the first or second year of age. When inherited, it may be due to phthisical or to scrofulous parentage, or to the circumstance of consanguineous marriages. It is not the result of syphilis, however, and should not be confounded with the hereditary evidences of that disease.

Acquired scrofula may be produced by any cause that impairs the nutrition of the system. The most potent factors in its development are insufficient and improper food, exposure to cold and damp, want of exercise and fresh air, deprivation of sunlight, or systemic depression produced by measles, scarlet fever, diphtheria, typhoid and typhus fevers, and other exhausting maladies. It occurs more frequently in the negro than in the white race, mulattoes being especially liable to it.

Treatment.—The treatment of scrofuloderma is similar to that of scrofula in general, and consists of the employment of both constitutional and topical measures. Attempts at absolutely prophylactic treatment are usually abortive, but we sometimes succeed in preventing the breaking down of tissue and consequent suppuration. The tincture of iodine, as well as the unguentum iodii and the unguentum potassii iodidi, are of little value for this purpose; they, if anything, irritate the inflamed skin still more, and hasten the issue, rather than prevent it. Poultices and warm fomentations act no better, while cold applications are annoying and impracticable. Excellent results can be obtained, however, from the application of a solution of iodoform in oleic acid, which I have named oleic iodoform. It is a five-per-cent solution, and is readily prepared. If brushed lightly over the tumefied surface with a camel's-hair brush, two or three times a day, it will frequently induce resolution without suppuration. Iodoform is non-irritating, while it possesses all the sorbefacient virtues of iodine. The oleic acid in which it is dissolved possesses superior penetrating powers, and will carry it deeper into the tissues than almost any other solvent. Oleic acid, which will not evaporate rapidly, like ether, also modifies in some degree the disagreeable odor of iodoform. Compression is also an effective means of promoting absorption and preventing the breaking down of the tumor. Strips of plaster have been used for this purpose, but they are not so effective as contractile collodion brushed over the surface every second day. The value of this application may be increased by saturating the collodion with iodoform. If this method be adopted in time, it will often produce a reabsorption of the nodule, and prevent ulceration and the formation of unsightly cicatrices. Local treatment will, however, be comparatively useless unless constitutional measures be employed at the same time. Exercise, fresh air, sunlight, and plenty of nourishing food are of paramount importance in all cases. Medicinally, the sulphide and chloride of calcium, quinine, cod-liver oil, iodine, the iodide of iron, and other chalybeates, have been warmly recommended by various authors and are certainly of great value in many cases. Unfortunately, they sometimes produce so much gastric disturbance that their administration must be suspended. There is another remedy, however, which I have found to be equal, if not superior, to any of those hitherto mentioned, and one that is always well borne by the stomach. This remedy, which has been highly commended by Dr. Alexander Harkin, of Belfast, is potassium chlorate. I read before the American Medical Association in 1880 an account of the results of my first observations on the action of this remedy in scrofula, and since that time not only have I had continued good results from its use, but I have also received a number of letters from physicians, confirming the results that I reported to the Association, and recommending the use of the remedy.* It may be given alone or in combination with any other antistrumous agent, with the certainty of increasing nutrition and assimilation and promoting the oxidation of the tissues, and of changing and improving the quality of the blood. Dr. Harkin, who has used it in tubercular as well as in scrofulous diseases, claims also as its effect that it increases the solid constituents of the blood, its fibrin and red corpuscles, restores muscular energy, and produces even a tendency to plethora. It possesses, without doubt, a markedly restraining influence on all suppurative processes. The tumescence and the violet color of the skin rapidly disappear under its use, or, if suppuration has already occurred, the thin, unhealthy character of the secretion rapidly disappears. While thus locally influencing the scrofulous condition, it modifies the constitutional disturbances of the strumous diathesis in many instances where cod-liver oil, iron, and quinine, have entirely failed. While I do not claim for potassium chlorate infallible specific virtues in the treatment of cases of scrofulous diathesis, inclusive of the skin affection of the disease, I do not hesitate to state that, as an adjuvant to proper hygienic surroundings, good food, and healthy exercise, I have obtained better results from it in the treatment of scrofulous disease of the skin than from any other of the remedies that are employed. The indications here are certainly to overcome a denutritive tendency of the tissues, which purpose can be attained only by securing increased oxidation of the blood and combustion of the fibrinous detritus. This indication, I aver, can be better fulfilled by the use of potassium chlorate than by remedies that act only indirectly. I have usually given it in doses varying, according to the age of the patient, from one half to ten grains, dissolved in water, three or four times a day. I generally begin with from one half to one grain, one hour before meals, and gradually increase the dose until the patient shows signs of improvement. If thus continued for some time it will increase the appetite, render a previously dark skin clear and florid, and add tone and vigor to the system. Those who are large, flabby, and apparently vigorous will improve, as a general rule, better under small doses, while, on the contrary, the pale and feeble bear much larger doses, and under its effect often increase rapidly in weight.

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* Transactions of the American Medical Association, 1880.

The local treatment of scrofuloderma, further than that already pointed out with the view of promoting resolution, must be instituted early and carried out energetically, if a speedy cure, without hideous cicatrization, be expected. As soon as it is evident that suppuration has occurred, the pus should be evacuated through a small incision made at the lowest point of the gland, or at the point of fluctuation. The interior of the pus-secreting cavity should then be scraped with the sharp spoon and touched with tincture of iodine or with a twenty-grain solution of nitrate of silver, in order to induce the formation of healthy granulations. If the pus, however, has passed through the integument, the undermined edges of the resulting ulcers should be trimmed off with the knife or scissors, the venous stasis should be removed by free scarification, and the crusts detached with a warm solution of borax in water, carbolized water or a solution of potassium chlorate in water. The unhealthy, flabby granulations should then be destroyed by the application of either nitrate of silver, sulphate of copper, or diluted acid nitrate of mercury, or, perhaps, better than either, by the galvano-cautery, and the wound dressed with a stimulating ointment of nitrate of mercury or the yellow oxide of mercury. This should be repeated from time to time until healthy granulations appear. Instead of the above method, the ulcer may be advantageously scraped with the curette, and the cautery applied subsequently. If laudable pus appear, and the surface assume a healthier look, it may be dressed with powdered potassium chlorate, iodoform, subiodide of bismuth, or iodol dusted freely over the surface night and morning. While unsightly cicatrices cannot always be prevented, they can be reduced considerably by the repeated application of tincture of iodine or collodion, or by gentle but continuous friction with fine sand or pumice-stone.

Prognosis.—The prognosis may be stated as ultimately favorable. It must be acknowledged, however, that the cutaneous lesions are frequently intractable, and, although they may not involve any actual danger to life, the long-continued suppuration may, together with the general nutritive impairment, produce the most serious systemic depression. If energetic treatment be adopted early, the disease may prove less obstinate than if its nature be mistaken until it assumes a chronic course. It may terminate, in any event, in the formation of disfiguring scars, a result which should be anticipated, and the patient or his friends informed of its probability; for, while cicatrices may, to some degree, be prevented by timely and proper treatment, they may yet occur in cases in which the inflammatory period has been shortened and suppuration almost entirely prevented.

TUBERCULOSIS OF THE SKIN.—Tuberculosis of the skin and mucous membrane is an exceedingly rare affection. Several cases, however, have been observed during the past few years by Chiari, Jarisch, and Kaposi. It is characterized by the occurrence of superficial ulceration, without any apparent cause, during the course of violent general tuberculosis. The ulcers vary considerably in size, are bright red in color, and round, oval, or irregular in shape. Their edges are slightly infiltrated, and their base is uneven, granular, and covered with a thin, yellowish secretion. They are slightly painful, but do not bleed readily when touched. They manifest no tendency to heal, but slowly increase in size by peripheral extension. They usually appear upon the skin immediately surrounding the natural orifices of the body and upon the adjacent mucous membranes. In five cases observed by Chiari the lesions all occurred upon the lips. In two cases reported by Kaposi, the lips, the nose, and the pharyngeal and tracheal mucous membranes were the seat of ulcers of various shapes and sizes. In one case observed by Jarisch the velum palati was covered with miliary degenerations and a crescentic ulcer was situated on the left ear. On microscopical examination of the lesions, the corium is found to be infiltrated with lymphoid cells and masses of miliary tubercles in various stages of degeneration.

MOLLUSCUM EPITHELIALE.

SYNONYMS.—Molluscum contagiosum—Molluscum sebaceum—Epithelioma molluscum—Condyloma subcutaneum—Molluscum sessile—Tumeurs folliculeuses—Acne varioliformis.

Molluscum epitheliale is a disease of the upper layer of the skin, characterized by the formation of rounded, semi-globular, or wart-like papules and tubercles, from the size of a pin-head to that of a pea, which present a whitish, translucent, or pinkish tinge.

Symptoms.—The disease begins as small, round, prominent tumors, which may rapidly or slowly attain the size of a split pea, or become even as large as a hazel-nut. The larger lesions are generally pedunculated and the smaller sessile. In color they may have the appearance of the skin of the region affected, or they may have a pinkish, waxy, or glistening look, the latter effect being due to the stretching of the skin of the part. They may occur singly, but are usually met with in numbers, in all stages of development. The tumors are flattened on the summit, with slight depression, in the centre of which, as a general rule, black points can be seen—the openings of the follicles. Their consistency is generally firm, but this, of course, will vary with the condition of their contents. The wall of each lesion is thick, but moderate pressure will cause the contents to escape in the form of a white, semi-fluid substance. They are generally slow in development, and are rarely attended with any subjective symptoms. They are at times accompanied with inflammation, especially if torn and irritated by scratching. The disease generally occurs on the face, especially the eyelids, cheeks, and chin. The neck, breast, and genitalia are frequently invaded, and any part of the body may be attacked, except the palmar and plantar surfaces. The tumors are usually confined to a limited area, are occasionally grouped, but seldom affect the whole body at the same time.

Diagnosis.—The disease is usually easily recognized, and is, perhaps, liable to be mistaken only for molluscum fibrosum. In molluscum epitheliale the lesions about the face are few in number, while in molluscum fibrosum they are many, and are frequently found over the body. The tumors of molluscum epitheliale, moreover, are, although prominent, superficial, while those of molluscum fibrosum are deep-seated. Again, in molluscum epitheliale a minute black point, the opening of the follicle, is generally visible in the lesions, while in molluscum fibrosum no appearance of this kind is observable. Lastly, molluscum epitheliale is generally a disease of childhood, while molluscum fibrosum is an adult affection.

Pathology.—The disease is said by some persons to originate in the sebaceous glands, but the most recent observers have shown that the process begins in the rete mucosum. The observations of Virchow, which are with reference to this disease the most generally accepted, go to show that it begins in the hair-follicles from a hyperplasia of the epidermis lining them. Thin and Robinson corroborate Virchow. Geber's investigations indicate how the rete cells become changed. He says: "I have become convinced that the large number of the altered rete cells pass directly and uninterruptedly into the condition of cornification, and that a smaller number are converted into molluscum corpuscles, after their cloudy, granular contents have changed into homogeneous, transparent hyaline substance.

Only a narrow zone of the external part of the body of the cells undergoes cornification. The fully developed molluscum corpuscles consist, therefore, of two substances—namely, a central hyaline and a peripheral keratoid substance."

Etiology.—Molluscum epitheliale is a rare disease. It occurs mostly in the poor, especially in children improperly fed, who also, necessarily, do not receive general care. The exact cause of it has not been settled satisfactorily. It frequently attacks several members of the same family at the same time, and on this account is thought to be contagious. Inoculation has, however, frequently failed to reproduce the disease. Geber states his belief that it is due to predisposition of the rete cells to proliferation, and that in a considerable number of cases local irritants act as exciting causes.

Treatment.—Only local applications are effective. The lesions, especially if numerous, may have applied to them some stimulating preparation, such as tincture of green soap, sulphur, white precipitate, or naphthol-ointment. If, on the contrary, they are few in number, they may be squeezed or scraped out, or ligated, or cut out with the knife. The most simple and effective means of destroying the lesions is to incise their apices, and afterward, with forceps, to force or tear out their contents, including the cell-walls. The cavity and base should afterward be cauterized, nitrate of silver being generally employed for that purpose. The tumors can also be removed by ligating them and cauterizing their bases.

Prognosis.—The disease inclines to spontaneous recovery. Proper treatment is followed by the complete removal of the lesions, unless they have not been thoroughly destroyed, in which event the growths are liable to return.

LEPRA.

SYNONYMS.—Elephantiasis Græcorum—Leontiasis—Lepra Arabum—Leprosy—Der Aussatz—La lépre—Spedalkshed.

Lepra is a chronic, malignant, contagious, constitutional disease, parasitic in origin, and characterized by various morbid alterations in the cutaneous, nervous, muscular, mucous, and osseous structures, producing hyperæsthesia, anæsthesia, ulceration, necrosis, general atrophy, debility, deformity, and death.

Symptoms.—Lepra is a constitutional disease that involves the entire system, and manifests its presence by general as well as by local symptoms. It is extremely chronic in character. Many years usually elapse between its first appearance and its termination, but its progress, while slow, is relentlessly certain. Every organ of the body is finally invaded, and every function affected by it, so that its unhappy victims eventually perish from inanition, unless they be fortunately carried off by some intercurrent disease.

Lepra is almost always preceded by a number of premonitory symptoms which, however, are indefinite in character and present no special significance except in regions where the disease is endemic. They consist of general *malaise,* loss of appetite, gastric disturbances, nervous prostration, excessive somnolence, irregular attacks of fever, and wandering pains in the bones. They may present themselves months before the actual outbreak of the disease. One significant symptom which frequently appears during this prodromal period is the development of a bullous eruption upon the skin. This eruption can readily be distinguished from that of pemphigus, from the fact that only a few bullæ are present at a time, and that no new lesions develop until after the old ones have disappeared. Another prodromal symptom which, according to Dr. D. B. Simmons, is regarded in Japan as pathognomonic of the disease, is an unusually deep flushing or lividity of the face after moderate indulgence in vinous or spirituous liquors. Febrile attacks which occur from time to time, without any apparent cause, are also significant, and may be mistaken for malaria by those who are unacquainted with the insidious manner in which lepra makes its approach. More characteristic symptoms develop sooner or later, and dispel any doubt that may have remained as to the true nature of the malady. The cutaneous lesions are usually the first to appear, and they remain prominent until the end. Disturbances of the peripheral nervous system are also of frequent occurrence, and in some cases may be the only manifestations of the affection. Every organ of the body, however, is finally invaded by the disease.

It was formerly supposed that there were only two varieties of lepra, the tubercular and the anæsthetic, but Kaposi and other investigators have demonstrated that there are three, the tubercular, the anæsthetic, and the macular. No exact lines of demarkation, however, separate these varieties. The disease may begin with the symptoms of any one of these three forms, but sooner or later the characteristic features of the other varieties also manifest themselves. The classification given is convenient, however, for purposes of observation and description, and has been adopted by physicians generally throughout the world.

Lepra Tuberculosa.—Lepra tuberculosa, or tubercular lepra, is characterized by the development of macules and tubercles upon the cutaneous and mucous surfaces. The macules are the result of the deposition of new material in the superficial tissues. They are usually well defined, but may fade imperceptibly into the surrounding healthy surface. They vary from a quarter of an inch to several inches in diameter. They are irregular in shape, smooth and glistening in appearance, and vary from pale red to dark brown in color. They are firm to the touch and slightly painful on pressure. When they first appear they are on a level with the adjacent surface, but soon become raised above it. They may develop upon any region of the body, but are most abundant upon the back and the extensor surfaces of the upper and lower extremities. They are also frequently met with on the buttocks, the palms and soles, and the forehead and cheeks. Occasionally some of the patches undergo complete involution and the skin resumes its natural color. The majority, however, increase in breadth and thickness, and produce extensive and prominent elevations of the surface. The skin then appears to be uniformly discolored and divided into irregularly shaped masses. Finally, as the process of infiltration continues, more prominent and distinctly limited elevations, termed nodules or tubercles, are formed. The tubercles are round or oval, and vary from the size of a split pea to that of a walnut, or may be larger. They are generally brown or dark red in color, and are more or less painful upon pressure. They are usually developed upon those regions of the surface that have been the seat of infiltration, but they may appear upon apparently healthy skin. They are frequently surrounded by an inflammatory or an œdematous areola. They are found upon the back, buttocks, arms, legs, fingers, and toes, but are most abundant upon the forehead, cheeks, eyelids, nose, lips, chin, and ears. The deformity which they produce is so characteristically hideous that, once seen, it can never be forgotten. The face, as a whole, is broad, swollen, and discolored, and presents an inexpressibly sad appearance. The skin of the forehead is thickened and thrown into deep folds which, in some cases, give a fierce or sullen aspect to the countenance (facies leontina). The nose is broad and flattened and covered with tubercles; the eyelids and cheeks are thick and pendulous; the chin is broad and swollen; the lips are thick and infiltrated ; and the ears are swollen and indurated. The hairs of the eyelashes and eyebrows are scanty or absent, and those of the beard are thin and lanuginous. The hands and feet are also horribly deformed. The hands are swollen, discolored, and covered with tubercles and masses of infiltration. The fingers are thickened, fissured, and clubbed at the ends. The thickening and induration, which are especially marked on the dorsal and lateral surfaces of the fingers, interfere, more or less, with the function of the joints, and sometimes render it impossible to flex the fingers. The finger-nails become pale, fissured, and brittle, and finally drop off or crumble away. The feet are swollen and distorted, and walking often becomes impossible because of the painful and swollen condition of the plantar surfaces. The lymphatic glands of the whole body also become involved and transformed into hard, prominent masses.

After the tubercles have become fully developed, they remain for a varying length of time without further change. During this period the general health is usually unaffected, and the mental faculties unimpaired. In some rare cases the disease is spontaneously arrested at this stage, and the existing tubercles disappear by absorption, leaving an atrophied, pigmented spot to mark their location. In the overwhelming majority of cases, however, the morbid process eventually receives a fresh impetus, new tubercles are developed, and the old tubercles become the seat of an erysipelatous inflammation, and break down and ulcerate. Ulceration of the tubercles may also be the result of pressure, friction, or other injury, and may exist for years without extending in breadth or depth. In many cases, however, the ulcerative process extends rapidly and deeply. The skin and the subcutaneous tissue are first destroyed, the muscles and tendons then attacked, the ligaments also invaded, the joints opened, and the affected parts separated. This is the condition known as lepra mutilans. It is usually confined to the fingers and toes, but has been observed on the wrists and ankles. It sometimes attacks all the phalangeal joints in succession. After the necrosed tissue has been thrown off, the proximal ulceration heals by the formation of a cicatrix. In some cases the middle phalanx of a finger or toe is alone affected, while the first and third are left intact. In these cases, after the necrosed tissue has sloughed away, the third phalanx is retracted against the first, and a varying degree of distortion or deformity results. Each exacerbation of the disease is followed by a period of quiescence, during which the patient is comparatively comfortable, and may even believe that he will finally recover. His nutrition and mental faculties are still well preserved, and the only troublesome or annoying symptoms present are those produced by the cutaneous lesions. Fresh accesses, however, occur from time to time, during which the eruption of tubercles becomes more extensive and the ulcerative processes more destructive. The mucous membranes become involved and tubercles appear in the mouth, nose, throat, and larynx, and upon the tongue, epiglottis, and conjunctiva. When they break down, extensive ulceration and destruction of tissue result. The nasal bones become necrosed, the nose sinks in, the uvula and the epiglottis are partially destroyed, and the voice becomes toneless and harsh. The tongue becomes infiltrated, swollen, and fissured, and œdema and ulceration of the glottis may occur. Ulceration of the conjunctiva and cornea, with destruction of the iris, and partial or complete loss of vision, may also result. Atrophy of the testicles is also noticed at this stage of the disease. Irregular attacks of fever are also of frequent occurrence, and announce the invasion of some internal organ by the disease. Finally, mental symptoms appear, and the whole organization is profoundly involved. The patient becomes listless and helpless, and loses all interest in himself and his surroundings. His eyes are dull and staring, and the whole expression of his countenance is indescribably despondent. All desire for food is lost, bed-sores form, profuse diarrhœa sets in, and the patient perishes from inanition. In some cases the fatal termination is accelerated by an intercurrent attack of pneumonia, albuminuria, tuberculosis, or some other acute disease. In other cases, after the tubercular eruption has existed for several years, bullæ are developed from time to time, limited patches of the skin become destitute of sensation, the tubercles disappear, and the symptoms of tubercular lepra gradually become merged into those of the anæsthetic type. Norwegian physicians believe that this is the natural course of the disease, and that every case of tubercular lepra would eventually be transformed into the anæsthetic variety if not anticipated by the death of the patient. The average duration of a case of tubercular lepra is from eight to twelve years.

Lepra Anæsthetica.—Anæsthetic lepra, or the lepra nervorum of Virchow, may appear in conjunction with the tubercular and macular varieties, but it frequently occurs as a primary and distinct form of the disease. It is preceded by a number of prodromal symptoms, the most significant of which are the formation of bullæ and the development of hyperæsthetic areas in the cutaneous surface. The bullæ are few in number, and vary in size from a bean to that of a walnut, or may be even larger. They contain a clear or yellowish fluid, and remain for a few hours or a few days. They then break spontaneously and their contents escape, after which the epidermis at their site desquamates and a white or pigmented cicatrix is formed. Other crops of bullæ appear and disappear in the same manner, and no other symptoms of lepra may become apparent for years. Occasionally patches of discoloration or other anomalies of pigmentation may be noticed. Sooner or later, however, the cicatricial or pigmented spots that mark the location of former bullæ become exquisitely sensitive. The areas of discoloration and portions of apparently healthy skin also become hyperæsthetic, the slightest touch producing the most intense suffering. In some cases the whole cutaneous surface may be affected so that motion of any kind is painful or impossible. The patient is compelled to lie in bed and must be fed like a child, as he is unable to help himself. During this stage of the disease the ulnar, median, radial, and other subcutaneous nerves are swollen and extremely painful under pressure. The hyperæsthetic portions of the skin become reddened or slightly œdematous, and are the seat of sharp, lancinating pains. In some cases the patient complains much of formication, or of a sensation of heat and burning in the extremities. This condition may last for months, but finally the pains and hyperæsthesia subside, and the patient imagines that he is getting well. Other and more serious symptoms soon appear and dispel this delusion. Anæsthesia succeeds to hyperæsthesia, and the formerly supersensitive areas become devoid of all sensation. Portions of the apparently normal skin become affected in a similar manner. Sensibility to touch, pressure, and changes of temperature is entirely lost, and, although a transient improvement may occur in some cases, anæsthesia eventually becomes complete over extensive portions of the cutaneous surface. The anæsthetic areas do not correspond to any definite nervous distribution. They vary in size and shape, and may be found upon any portion of the body. As the morbid process continues, the subcutaneous structure also becomes involved, so that a pin can be thrust deep into the muscles without producing any pain. Other trophic changes finally occur. The subcutaneous fat disappears, and the skin over the anæsthetic areas becomes dry, thin, and wrinkled. The sweat-glands and hair-follicles become absorbed or destroyed, and the hair falls out over the entire body. The finger-nails become fissured and brittle, and drop off or crumble away. The facial muscles atrophy, and the countenance, which at first presented an expression of mingled sadness and despair, becomes hideously distorted. The eyelids droop so that the tears escape and flow down on the side of the face. The lower lip hangs pendulous and becomes everted, exposing the gums, and allowing the saliva to dribble out of the corners of the mouth. The muscles of the hands and feet also become atrophied ; the hands are bent and deformed, and the fingers flexed and distorted ; the toes are twisted in various directions, so that walking is difficult or impossible, and the patient at last becomes unable to leave his bed. After a time, owing to the pressure of the bony prominences on the skin around the joints, the epidermis becomes fissured and desquamates. Superficial ulcerations are then formed, which gradually involve the deeper structures. Muscles and tendons and ligaments are destroyed, articulations are opened, and a phalanx, a hand, or a whole foot becomes separated from the body. This is the process known as lepra mutilans, and is identical with that which occurs in the later stages of lepra tuberculosa. The mucous membranes are also attacked by indolent ulcerations that produce extensive destruction of tissue followed by loss of voice, sight, and smell. Intercurrent attacks of erysipelas and leprous fever are common. Finally, the central nervous system becomes involved. The patient sinks into a state of profound apathy, remaining motionless for days at a time. His temperature becomes diminished, the heart's action feeble and slow, and the breathing shallow and irregular. The immediate cause of death is usually inability to take sufficient food to prolong life, but diarrhœa, pneumonia, or Bright's disease often put an end to the patient's sufferings before that stage is reached. Anæsthetic lepra is the most chronic variety of the disease, and generally lasts fifteen or twenty years from the first appearance of its symptoms.

LEPRA MACULOSA.—This variety of lepra is usually preceded by a number of indefinite prodromal symptoms, after which the characteristic macules make their appearance upon the skin. In many cases they appear without any accompanying constitutional symptoms, so that patients become aware of their presence only from accidental observation. In other cases, however, they develop during a febrile attack. They vary in size and color, in some cases consisting of pale-red discolorations, which vary from half an inch to several inches in diameter, and disappear under pressure; and in others, of dark-brown or black discolorations; in rare cases they are white and glistening. They are usually slightly elevated above the surrounding surface. They may appear on any portion of the body, but are usually most numerous on the face and hands, where they form a striking contrast to the adjacent normal skin. After a variable length of time the symptoms of one of the other forms of lepra appear and tubercles develop themselves, or the macular areas become the seat of hyperæsthesia, anæsthesia, atrophy, and ulceration, after which the disease pursues its usual course. Attacks of erysipelas and leprous fever are noticed from time to time, more or less destruction of tissue occurs, and death by gradual inanition, or some intercurrent disease, finally closes the scene.

Complications.—As lepra is a disease of such extreme chronicity, various complications of the cutaneous lesions may be expected to occur. Those which have been most frequently observed are erysipelas, elephantiasis Arabum, syphilis, scabies, favus, eczema, fibroma molluscum, and herpes. The internal complications are numerous and varied, but do not require any special description. Those which occur most frequently are pneumonia, pleurisy, pericarditis, peritonitis, nephritis, hepatitis, enteritis, and colliquative diarrhœa.

Diagnosis.—The symptoms of a fully-developed case of lepra are so characteristic that an error in diagnosis is almost impossible. The hideous countenance, the infiltrated and discolored surface, the tubercular eruption, the cutaneous hyperæsthesia, followed by anæsthesia, the ulcerations, atrophy, and deformity that occur from time to time, the history and extreme chronicity of the lesions, all unerringly indicate the true nature of the malady. The diagnosis is more difficult in the prodromal stages of the disease. In Japan, the deep lividity of the face, occurring after even moderately imbibing vinous or spirituous liquor, and even at the very beginning of the affection, is regarded as pathognomonic, and sufficient to justify the isolation of the person in whom it is observed. Apparently causeless febrile attacks, and the persistent recurrence of a limited number of bullæ, should also be viewed with suspicion. With these exceptions, however, the premonitory symptoms are so indefinite in character that they would not excite alarm except in localities where the disease is endemic. The development of the cutaneous lesions is only a question of time, however, and their appearance is usually sufficient to enable one to make the diagnosis. In some rare cases the macules and tubercles may be confounded at first with those of syphilis. They differ, however, from the latter in being larger and more irregular in shape and distribution, the erythematous macules of lepra being often several inches in diameter. They are also smooth and glistening in appearance and raised above the level of the surrounding skin, are situated on an infiltrated base, and are often as large as walnuts. They also differ in progress and duration from the macules of syphilis.

The macules of lepra have been confounded with those of vitiligo. This mistake can readily be avoided by remembering that vitiligo consists only of a deficiency of pigment in a circumscribed area of the skin, with a slight increase of pigment around the borders of the altered area. The general health in vitiligo is unaffected, and the skin remains normal in texture and sensation. In lepra, on the contrary, the affected areas are infiltrated and elevated above the adjacent surface, and are also the seat of various disorders of sensation. Morphœa, which was formerly supposed to be a benign variety of lepra, can be differentiated in a similar manner. Its patches sometimes resemble those of lepra in appearance, but they are normal in sensibility and unaccompanied by constitutional symptoms, and tend to spontaneous disappearance. Sarcoma and elephantiasis Arabum have been mistaken for lepra, but their symptoms and progress are so different from those of the last-mentioned malady, that it is difficult to understand how error could have arisen. In any doubtful case the blood from the suspected lesions should be examined microscopically in order to determine the presence or absence of the specific bacillus of lepra.

Pathology.—The pathology of lepra was first placed upon a true foundation by the distinguished Norwegian physicians, Daniellsen and Boeck. Further investigations by eminent physicians in all parts of the world have but confirmed the correctness of their views. The various lesions of the disease are, according to this concurrence of opinion, produced by the deposition in the tissues of a new material composed of small, round cells. The cells are similar in appearance to those which occur in lupus and syphilis, but they are more closely aggregated and more permanent in character, and, according to recent investigations, always contain the specific bacillus of lepra. The recognition of these bacilli is comparatively easy. They appear as fine, minute rods of about one five-thousandth of an inch in length. They are usually pointed at both ends, and the majority of them contain spores. According to Guttmann they possess the power of spontaneous motion. The cellular new material first appears in the corium, and then gradually invades all the cutaneous and subcutaneous structures. It compresses the blood-vessels, lymphatics, and the peripheral nerves, and produces various trophic disturbances that manifest themselves by alterations in color, sensation, and nutrition. As the process of infiltration continues, elevations, nodules, and tubercles develop upon the surface of the skin, while the hair-follicles and the sebaceous and sudoriferous glands become obliterated. The hairs fall out, and the finger-nails decay for want of proper sustenance. After a time fatty degeneration of the cells of the newly-formed tissue occurs, and ulceration and necrosis of the adjacent structures is the result. The lymphatics and blood-vessels carry the infection to the mucous membrane and the internal organs. The pathological process then becomes a general one, and the same deposition and infiltration of small, round cells takes place in the lungs, liver, kidneys, spleen, intestines, and testicles. Lesions of the central nervous system, including degeneration of the cord and myelitis of the posterior cornua, have also been observed.

In anæsthetic lepra the infiltration and deposition of the new cells are in the beginning limited to the interstitial substance between the primitive fibrillæ of the cutaneous nerves. As the process continues, the pressure upon the delicate fibres produces severe irritation, which is coincident with the stage of cutaneous hyperæsthesia. More or less neuritis is then developed, the cell-growth is increased, the nerves become enormously swollen, and atrophy or fatty degeneration of a number of primitive fibres occurs. The areas that were dependent upon the fibres for innervation then become anæsthetic. Atrophy, ulceration, and other trophic changes follow in time. After death the ulnar, radial, median, musculo-cutaneous, and peroneal nerves are found to be irregularly swollen along their entire length, harder than usual, and altered in color from white to dark gray, and the neurilemma transformed into a tough, fibrous material. The specific bacilli are present in the cells and in the connective tissue between the nerve-fibres.

Etiology.—Lepra has existed in all ages and in all countries. At the present time it is endemic in northern and eastern Africa, Madagascar, Arabia, Persia, India, China, Japan, Liberia, and the islands of the Pacific and Indian Oceans. It is also known in Brazil, Venezuela, Central America, Mexico, and the West Indies. It has been practically eradicated from western and central Europe by the most rigorous isolation, but is still active in Norway, southern Russia, and at various points along the Mediterranean. In North America it appears to have obtained a permanent foothold at Tracadie, in Canada, and in certain districts of Louisiana, South Carolina, and Minnesota, in the United States. Isolated cases have also been observed in New York, Maryland, and California. Many theories have been advanced to account for its presence in so many different localities and under such varying conditions of climate and modes of life. It was formerly supposed to be generated by some peculiarity of the soil or of the atmosphere, but it is found in dry as well as in moist climates, in mountainous as well as in marshy districts, and in the Arctic regions as well as in the tropical zone. The habitual consumption of improper food, such as salt fish, has also been suggested as a cause, but the disease is endemic in many localities where fish is never eaten. Impure drinking-water, foul air, and filthy personal habits, have been regarded as influential factors in its production, but it is obvious that they can act only as predisposing causes by lowering the tone of the general system. Heredity, also, has been regarded as the essential factor in the causation of the disease, and numerous cases are recorded in which lepra has occurred in the same families for generations. The phenomena of the disease, however, are in these cases never manifested at birth, rarely appearing until the children are four or five years old, and they may not manifest themselves until the fifteenth or twentieth year. Many cases are known in which children have been born of leprous parents, but have remained free from the disease throughout their lives. On the other hand, it is frequently met with in persons whose ancestors were free from all leprous taint. The belief that lepra is spread by contagion has existed from time immemorial, and may now be regarded as established beyond doubt by the numerous cases that have been recorded of persons who contracted the disease after residing for a brief period in an infected district. The rapidity with which the disease has developed in regions where unrestricted intercourse has been allowed with leprous patients is another proof of its contagiousness. Forty years ago, according to the inhabitants, leprosy was introduced into the Hawaiian (commonly, but erroneously called the Sandwich) Islands, by two Chinese coolies. Now, over four thousand five hundred persons, or one tenth of the total population, are victims of the disease! In 1805 there were three lepers on the Island of Trinidad; in 1878 there were eight hundred and sixty. In Norway, on the contrary, where a rigid system of isolation is enforced, the number of lepers has decreased fifty per cent within the past twenty years.

The exact manner in which the contagion of lepra is transmitted is still unknown. Mere contact with the secretions or lesions will not produce any evil results. Many cases have been reported in which persons have maintained the most intimate relations with lepers for years, and yet did not manifest any symptoms of the disease. Further observations are necessary to perfect our knowledge on this point, but the evidence in our possession now is strongly in favor of the supposition that all the phenomena of the disease are produced by the inoculation and multiplication in the system of a specific micro-organism, the lepra bacillus.

Treatment.—Lamentable as is the direful fact, and professionally humiliating as is the confession, it must be acknowledged that leprosy being at present an absolutely incurable disease, the safety of the community can be secured only by the isolation of every person who may become affected with it. Various remedies have been recommended from time to time as of inestimable value in its treatment, but they have been found to be valueless as curative, and at the best only palliative. Continued observation and experimentation will doubtless ultimately furnish us with an efficient remedy, but at the present time the only plan of treatment from which any benefit can be derived is that which aims to improve the general condition of the patient. Iron, quinine, arsenic, and cod-liver oil should be administered in alternation. The diet should be bland and nutritious. The patient should remain in the open air as much as possible, and every means should be employed to keep up his health and spirits. The local symptoms must be treated as they arise. The cutaneous pain and hyperæsthesia may be relieved by subcutaneous injections of cocaine or of morphine and atropine. The succeeding anæsthesia may frequently be lessened or its development retarded by the persistent use of a mild galvanic current. Absorption of some of the tubercles may be secured, in the early stages at least, by the application of iodine, nitrate of silver, mercurial ointments, or small blisters. The tubercles and infiltrations on the tongue and in the mouth and larynx may be rendered less painful by the application of a solution of cocaine. All ulcerations should be dressed with subnitrate or subiodide of bismuth, in the hope of inducing early reparative action. If the ulcerative process manifests a disposition to spread, the bottom and edges of the ulcer should be thoroughly mopped with pure carbolic acid, and the bismuth applied afterward. Sulphur-baths, iodine-baths, and salt-water baths are beneficial in all stages of the disease. Medicinally, in addition to the tonics referred to, benefit has been obtained from the administration of large doses of creosote and salicylate of sodium. Hoáng-nân, the powdered bark of strychnos gaulthieriana, which contains both brucine and strychnine, has been used extensively in China by native and European physicians. It is generally given three times a day, in from one to three grains at a dose, and has relieved the symptoms and retarded the progress of the disease. Hillis, Dougal, and Espinet have written enthusiastically in favor of external applications of gurjun-oil. The majority of the patients who employed this remedy were wonderfully benefited, and some were so much improved by its use that they were enabled to resume their former occupations. Chaulmoogra-oil has also been effective in ameliorating the symptoms and modifying the course of the disease. It can be given in doses of from five to fifteen minims, in an emulsion or in milk, and may at the same time be used externally as an ointment, twenty to thirty grains to the ounce.

Great and immediate improvement can be obtained in many cases by simple change of air and scene, but the risk of spreading the disease is so great that this measure should be recommended only in rare cases. The safety of the community must not be imperilled in order temporarily to benefit one individual; and, as Daniellsen and Boeck, the great Norwegian physicians, truly observed years ago, "Our whole theory of lepra rests incontestably upon the sad fact that, within the bounds where it commits its ravages, it can be made harmless to the rest of the people only by isolation." Moreover, this isolation should be carried beyond the point of separating lepers from the non-infected. The best results are attained by separating lepers from each other—that is, by absolute isolation. By this method lepra has been circumscribed in certain localities, especially in Norway.

Prognosis.—The prognosis of lepra is always unfavorable. Temporary improvement may sometimes be obtained in isolated cases, and the disease may seem to be arrested or cured. Sooner or later, however, new symptoms develop, and the disease resumes its inexorable course. The immediate prognosis depends upon the type of the disease, the number of years it has existed, and the presence or absence of complications. Patients affected with tubercular lepra die sooner than those who are attacked by the macular and anæsthetic varieties. Pneumonia, erysipelas, Bright's disease, etc., add to the gravity of the prognosis.

According to Hillis, the ultimate causes of death in this disease, proportionally exhibited, are as follows:

Bright's disease	22·5%
Pneumonia, etc.	17 %
Diarrhœa	10 %
Anæmia	5 %
Remittent fever	5 %
Peritonitis	2·5%
Direct consequences of lepra, including exhaustion from leprous ulcerations, stenosis of larynx, leprous deposits in internal organs, marasmus, atrophy, etc.	38 %
Total	100 %

Frambœsia, also termed yaws and pian, is a contagious cutaneous disease, characterized by the formation of macules, papules, tubercles, and pustules, and accompanied by more or less lassitude, fever, and pains in the joints and bones. It appears to be endemic in the West Indies and on the western coast of Africa. It is occasionally observed in the southern portion of the United States. The eruption consists at first of a variable number of macules, which become elevated and transformed into papules or tubercles. They are usually firm to the touch, round or oval in shape, and red or yellow in color. They gradually increase in size, and become covered with small, flat, red elevations, presenting a raspberry-like appearance. Some of the lesions coalesce, forming large fungoid masses. After a time the lesions become fissured or abraded, and a semi-purulent substance oozes out. Some of the papules may become changed into pustules. The eruption may appear upon any portion of the body, but is most frequently observed on the face and neck, around the anal and genital regions, and on the hands and feet. There is no itching at any time, and the eruption is not accompanied by pain except when the lesions are subjected to pressure. It pursues a protracted course, and may, if untreated, remain for years. In severe cases it may terminate in deep and wide-spread ulceration and the formation of permanent cicatrices. It is produced by contagion, and is most frequently propagated by sexual intercourse. It may be acquired, however, through the medium of eating- and drinking-utensils and other infected articles. It does not permanently affect the constitution.

The most effective treatment consists in the administration of chalybeate tonics and the mineral acids. The most scrupulous attention must also be paid to cleanliness. The lesions should be washed with soap and water twice a day, and then dusted over with calomel or weak nitric acid, or carbolic-acid lotions may be applied to them. In some cases a weak mercurial or sulphur ointment may be employed with advantage.

Pellagra, which may as well be noted here, is an endemic, constitutional affection, characterized by severe gastro-intestinal and nervous disturbances, and accompanied by various cutaneous symptoms. Any portion of the skin may be involved, but the face, neck, arms, shoulders, and legs, all of which, among certain classes in the countries where it is prevalent, are habitually unprotected from the sun, suffer most severely. The epidermis becomes reddened and painful, and may peel off in large patches. Vesicles and bullæ may also form. The eruption is always aggravated during the summer months. It may appear at any age and in either sex. The constitutional symptoms are varied and severe. Pellagra is endemic in Italy, and is occasionally observed in southern France and Spain. A number of causes are concerned in its production, such as imperfect ventilation, impure water, and insufficient food. The most important factor, however, is the use of diseased maize as an article of food.

Podelcoma.—The disease which is known as podelcoma, fungus-foot, madura foot, or mycetoma, finds appropriate mention here. It usually involves the sole of the foot, but may manifest itself on any portion of the body. It is characterized by a reddened, swollen, and painful condition of the affected part, which is followed by ulceration and the formation of deeply penetrating sinuses, surrounded by soft, fungiform tubercular masses of varying shapes and sizes. The disease is not infrequently met with in India, where it has been described by Vandyke Carter,* Lewis, and Cunningham.† In a case occurring in this country, reported by Kemper,‡ the patient was a young man whose foot became reddened, swollen, and painful, without any apparent cause. After a few weeks several bullæ developed on the affected surface and ruptured spontaneously, exposing several small orifices from which a whitish, glairy substance exuded. Ulceration then ensued, resulting in the formation of deep-burrowing sinuses. The pain was so intense that amputation of the foot had to be resorted to in order to procure relief. The muscles of the dismembered foot were found to be partially disintegrated and to contain masses of a mould-like substance which, on microscopical examination, was seen to consist of irregular, granulated, refractive bodies, resembling vegetable spores. A similar but milder case, occurring in the practice of Dr. Charles T. Parkes, of Chicago, is described by Hyde. The patient had resided in India for many years. The characteristic tubercular lesions of the disease appeared around the inner malleolus of the right ankle, after which, in spite of all the treatment at first resorted to, an ulcer formed and steadily increased in size for five years. Deep sinuses penetrated the tissues in all directions, and the entire surface became covered by a soft, white, fluffy, mould-like substance. Dr. Parkes finally scraped the ulcerated tissues thoroughly, and applied to them a dressing of saturated boracic acid, after which treatment repair ensued.

The cause of this disease is not known. The theory that it is due to a vegetable fungus appears plausible, but is not supported by conclusive evidence.

The affection known as perforating ulcer of the foot, or *mal perforant du pied*, may here be briefly described. According to Monod,# who has written with precision on the subject, it is met with almost exclusively on those spots of the sole of the foot that are subject to the greatest relative pressure from the boot or shoe—the heel, the ball of the great toe, and the distal extremity of the fifth metatarsal bone. The progress of the disease may be divided into three stages. The first stage consists of an excessive thickening and hardening of the epidermis, of a callosity at one of the points of greatest pressure. This stage may last for years, and may be the only evidence of the disease. The second stage is that of ulceration, which may occur either as the consequence of atrophy of the corium, from long-continued pressure, or as the consequence of the inflammation and suppuration of the synovial bursa. The ulcer varies in character, but usually appears as if it had been punched out of the centre of a mass of thickened epidermis. It is indolent, and accompanied, even upon pressure, by little or no pain. The surrounding skin is cold and less sensitive

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* On Mycetoma, London, 1874.

† The Fungus Disease of India, Calcutta, 1875.

‡ American Practitioner, September, 1876.

Le Progrès Médical, January, 1884.

than the normal surface. In the third or perforative stage of the disease, the ulcer penetrates deeply through the tissues, destroying in succession muscles, tendons, periosteum, and finally the bone.

This disease occurs as a general rule in men who are obliged to stand or walk a great deal. One or more ulcers may be present, and both feet may be involved at the same time. According to Treves, the ulceration is a purely local process, produced by local causes only. Duplay, Morat, and many others, however, believe it to be the result of morbid alterations occurring either in the brain, the spinal cord, or the peripheral nerves. In twelve cases reported by Ball and Thibierge to the Eighth International Medical Congress, the ulceration was coincident with the development of locomotor ataxia. It is probable, however, that both nervous degeneration and local pressure, or injury, are necessary factors in its production.

The most effectual treatment consists in placing the part completely at rest. The callosities should be pared off with a sharp knife, and the ulcer should be covered with subnitrate or subiodide of bismuth, in order to induce prompt reparative action. If a sinus has formed, it should be either opened or thoroughly cauterized. If the soft parts have been destroyed, or the bone injured, resection or amputation may be necessary. The disease may, however, recur in the stump.

EPITHELIOMA.

SYNONYMS.—Epithelial cancer—Cancroid—Carcinoma epitheliale.

Epithelioma is a superficial semi-malignant form of carcinoma, primarily involving the skin and the mucous membrane lining the various orifices of the body.

Symptoms.—There are three well-marked varieties of epithelioma—the superficial, the deep-seated, and the papillary.

The superficial variety usually manifests itself by the development in the upper layers of the skin of one or more small, firm papules or nodules. They are pale-red or yellowish-white in color, and present a glistening, waxy, or a semi-transparent appearance. They vary in size from that of a pin-head to that of a small shot, and are generally grouped, forming a wart-like projection above the surrounding surface. They soon become slightly fissured, and exude a scanty, tenacious, opaque secretion, which dries up and forms a thin, brownish crust. The disease might be mistaken at this stage for a simple abrasion of the surface, or for an ordinary wart that had been irritated by scratching. The papule or nodule manifests no disposition to heal, however, but slowly enlarges peripherally by added nodules. The nodules are commonly known as cancroid corpuscles, and are characteristic of this affection. They can readily be picked or squeezed out of the skin, and when rubbed between the fingers crumble into small particles, which, when examined microscopically, are found to consist of epithelial cells of various shapes and sizes.

Sooner or later new points of excoriation appear, and finally the whole mass breaks down and becomes converted into a superficial ulcer. The ulcer thus formed is usually round or oval, with sloping, indurated, and slightly elevated edges. Its base is reddish and granular, and covered with a viscid, yellowish secretion. It bleeds easily, although not at first painful. It slowly increases in width until in some cases it attains a diameter of an inch or more. It may then remain for years as a purely local lesion. Sooner or later, however, the ulcer extends in depth as well as in breadth, and manifests its malignancy by attacking the deeper tissues. This disease, which was long known as rodent ulcer, is simply a variety of the superficial form of epithelioma. It occurs most frequently upon the nose, cheeks, eyelids, and forehead. It presents itself as an irregular, superficial, sharply circumscribed ulceration, with infiltrated, perpendicular sides. Its surface is dark red and uneven, and covered with a scanty brown or yellow secretion. Its progress is slower than the other forms of epithelioma, but it is far more destructive, as it invades every tissue, whether muscular or osseous, with which it comes into contact.

The deep-seated or infiltrating variety of epithelioma may, like the superficial variety, arise from the degeneration of an ordinary wart or a sebaceous tumor, but it generally begins with the formation of one or more large, round nodules in the subcutaneous connective tissue. They vary in size from that of a small shot to that of a bean, and are light red or purplish in color. They are surrounded by an inflammatory or congestive areola, and are slightly elevated above the surrounding skin. They are firm to the touch, and not painful at first. They slowly increase in size and number, and gradually coalesce to form large, irregular tumors or masses of infiltration. Sooner or later, however, ulceration begins either on the surface or in the centre, and rapidly spreads until the disintegration of the growth is complete. The ulcer thus formed is irregular in shape and size. Its sides are steep and everted, and its base is covered with a thick, yellowish secretion. It is surrounded by a zone of infiltration, and bleeds easily when touched. It rapidly increases in width and depth, and becomes the seat of sharp, lancinating pain. The neighboring lymphatic glands soon become hard and swollen, other structures become involved, and the patient finally dies from pain and exhaustion.

The papillary variety generally begins as a wart-like formation elevated above the adjacent cutaneous surface, and varies in size from that of a split pea to that of a chestnut. In some rare cases it appears as a large lobular or spongy excrescence developed during the ulcerative stage of one of the preceding varieties of the disease. It slowly increases in size, but after a time becomes fissured and covered with large, exuberant granulations from which a thin, sanious, offensive secretion issues. Its surface may remain moist or may become covered with masses of crusts and scales, but finally it breaks down into an irregular, open, and painful ulcer. Its further course depends upon the depth to which the tissues were penetrated by the primary lesion. In some cases the papilloma having been situated superficially, the resulting ulcer also remains superficial for a long time. In the majority of cases, however, it is imbedded in the subcutaneous connective tissue, and the ulcerative and infiltrative processes extend widely and deeply, and the disease pursues a malignant course.

Epithelioma is a disease of middle and advanced life. It is rarely observed before the fortieth year, and is developed most frequently between the fiftieth and sixtieth years. It occurs more often in men than in women. It may appear upon any portion of the body, but it is most frequently met with on the face and in the genital regions. The eyelids, the cheeks, and the upper lip are favorite localities for the superficial variety of the disease. The deep-seated variety manifests a special predilection for the forehead, the nose, and the lower lip. The mucous membrane lining the nasal and buccal cavities often becomes involved, either primarily or secondarily, and the tongue also may become the seat of the disease. The penis may be attacked by either the superficial or the papillary variety. The superficial variety is occasionally observed upon the scrotum, where it forms the disease long known as chimney-sweeper's cancer. The conjunctiva, pharynx, larynx, nipple, labia, vagina, and uterus may be attacked by any variety of epithelioma. The anus and rectum also are subject to the disease. It has sometimes been observed upon the abdomen, the backs of the hands, and upon the scalp.

Diagnosis.—The diagnosis of epithelioma is easy in the advanced stages of the disease, but the disease might in the beginning of an attack be confounded with the lesions of syphilis and lupus vulgaris, or with ordinary warts, simple condylomata, or seborrhœa sicca. The papule or nodule of epithelioma may at first resemble a hard chancre, but the history of the case and the course and duration of the lesion will soon point to the correct diagnosis. The epitheliomatous ulcer might at first sight be confounded with a tertiary syphilitic ulcer, but syphilitic ulcers are usually multiple, while epithelioma is almost invariably single. The secretion in syphilis is fetid, yellow, and abundant, while in epithelioma it is usually blood-streaked, viscid, and scanty. Epithelioma is usually surrounded by a well-marked zone of infiltration, which is either absent or insignificant in syphilis. Finally, epithelioma is a disease of long duration, accompanied by severe, lancinating pain, while the ulceration of syphilis runs a comparatively swift course and is not attended with any pain.

Epithelioma sometimes presents a superficial resemblance to lupus vulgaris, but the former rarely manifests itself before middle or advanced age, while the latter usually begins during childhood or early youth. The lesions of epithelioma are usually single and limited in area, while those of lupus are multiple and wide-spread and may appear on several regions of the body at the same time. The patches of lupus are usually surrounded by the characteristic papules and nodules of that disease, while epithelioma is surrounded by a zone of infiltration. The secretion from the ulcers of lupus is abundant, yellow, and puriform, while that from epithelioma is scanty, viscid, and often very offensive. Finally, pain is a marked feature of epithelioma, while lupus is attended with little or no pain.

It is often difficult and even impossible at times to decide whether a new wart-like formation is the initial lesion of epithelioma or only an ordinary wart. The difficulty is increased by the fact that an apparently simple wart may after the lapse of many years become the seat of some degenerative process, and become converted into epithelioma. As a general rule all such formations developed after the age of thirty should be looked upon with suspicion and removed at once, especially if they make their appearance on the lips or nose or near any of the orifices of the body.

The papillary form of epithelioma usually attacks the genital regions, and may be confounded with ordinary condylomata. The presence or absence of pain and the age and history of the patient will assist in enabling the physician to make a correct diagnosis. If more than one lesion be present, the presumption is in favor of condylomata. In doubtful cases the growth should be removed at once, as serious results may be produced by delay.

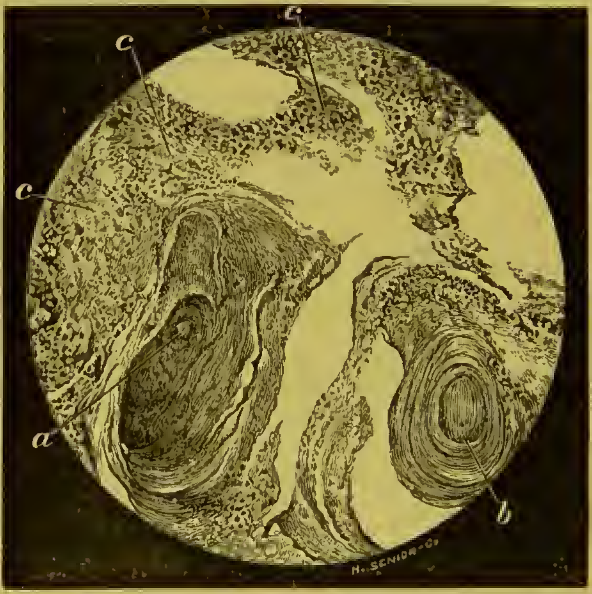

FIG. 16.—(Photo-micrograph.) Epithelioma magnified 75 diameters: *a*, epithelial pearl; *b*, nest with pearl in centre; *c*, collections of epithelial cells. The section exhibits spaces where tissue has fallen out in the preparation.

Epithelioma of the face is sometimes preceded by a congestive, scaly condition of the surface, resembling that which occurs in seborrhœa sicca. The latter disease, however, usually occurs over a wide-spread area, or on several portions of the body at the same time. The lesions of epithelioma are, as has been said, usually single and limited in area, and accompanied sooner or later by characteristic small, waxy nodules, the so-called "cancroid corpuscles."

Pathology.—Epithelioma consists essentially of the inward growth and continuous multiplication of the epithelial cells of the rete mucosum. If, at the commencement of the disease, a vertical section of the skin be made, the only variation from the normal condition that can be observed is the unusual length of the interpapillary processes of the rete mucosum, which project down into the corium like the fingers of a glove. Other and more important changes soon follow: the blood-vessels become dilated, the deeper layers of the skin become infiltrated with serum, and the lymph-spaces crowded with wandering cells and lymphoid corpuscles. The projecting, finger-like processes of the rete increase in size and divide into branches, which unite with each other to form a framework of epithelial tissue. The cells of which they are composed become pressed together and form compact masses of various shapes and sizes. Sometimes they are arranged concentrically, like the layers of an onion, forming the so-called "epithelial nests" or "epithelial globes." At other times they are arranged in cylindrical, conical, or club-shaped masses. In some cases the central cells undergo complete horny transformation. In papillary epithelioma there appears to be a combination of papillary hypertrophy and epithelial proliferation. Finally, in all cases, the gradually increasing pressure of the epithelial cells interferes with the circulation. The small papillæ and their arteries become obliterated and the larger vessels are lessened in calibre. Degeneration and ulceration soon appear and mark the beginning of the second stage of the disease. As long as the ulceration remains superficial the patient's health is not much affected, but when it extends to the deeper tissues, the neighboring lymphatics soon become affected and through them the general system becomes profoundly involved. Death may occur from pain and exhaustion, or from the transference of the disease to one of the internal organs.

Etiology.—The etiology of epithelioma is unknown. In some cases the disease seems to be due to long-continued pressure or other mechanical irritation. In a reported case of epithelioma of the abdomen, the disease was evidently induced by the pressure of a board which the patient kept constantly suspended against his abdomen while working at his trade of shoemaking. Chimney-sweeper's cancer is supposed to originate from the irritation produced by the soot collected in the folds of the scrotum, and epithelioma of the lips and tongue is often apparently due to the irritation of a short pipe or a broken tooth. Cases often occur in which no source of irritation or of traumatism can be discovered. Old scars and pre-existing warts and nævi and sebaceous cysts frequently undergo degeneration without any apparent cause, and become the seat of epithelioma. A predisposition to the malady seems to exist in some families. Old age is, however, the most important predisposing factor, and it is probable that the directly exciting factor consists of some undiscovered changes in the trophic nervous system.

Treatment.—A suitable diet is of the utmost importance. Bread, milk, eggs, vegetables, and fruit may be freely eaten, but no meat should be allowed for several months. Medicinally, morphine alone, or in combination with atropine, must be resorted to in the later stages of the disease, when the pain becomes severe. There is reason to believe that the morbid process can be retarded by the persistent employment of small doses of the bichloride of mercury, alternated with arsenic. It has been stated that chlorate of potassium in ten-grain doses also exercises a beneficial influence. The best results can, however, be obtained only by external treatment. The diseased tissue must be destroyed either by chemical or mechanical means, and the sooner that is done the less the probability of a recurrence of the disease. Superficial epithelioma can be extirpated by any of the various caustic preparations. The method most frequently employed is to thoroughly cauterize the lesion and the adjacent healthy tissue with caustic potash, either in the stick form or in strong solution. The part should then be mopped with diluted acetic acid, to neutralize any of the alkali that may remain, and should then be dressed with zinc-ointment or any other soothing application. The dressing should be renewed daily, and the wound washed every morning with a weak solution of borax or common salt. In about twelve days the eschar drops off, usually leaving a healthy granulating surface, which will in mild cases heal rapidly, leaving only a small cicatrix.

Another plan that has yielded good results is to apply to the affected surface, first pure carbolic acid, and then, in a few minutes, to follow it with nitric acid. Nitrate of silver or potassa cum calce may also be employed. Chloride of zinc, in paste, in solution, or in the solid form, is an effective remedy, but its application is very painful.

Arsenic is also a valuable application. It may be employed as in the following powder, which is recommended by Esmarch: Arsenious acid one part, sulphate of morphine one part, calomel eight parts, and powdered gum acacia forty-eight parts. It may also be applied in the form of Marsden's paste, which is composed of equal parts of arsenic and powdered gum acacia, with sufficient water to make a soft paste. A small amount of morphine should also be added to mitigate the pain. The arsenical preparations should not be applied to the mucous surfaces, nor at the same time to more than two or three square inches of the integument. Serious consequences have resulted from non-observance of these precautions.

Pyrogallic acid in the form of a ten or a twenty per cent. ointment is highly recommended by Kaposi, Jarisch, Duhring, and others. It does not cause any pain, and must be applied continuously for six or eight days. The ethylate of sodium is also a valuable remedy. I have obtained excellent results in several obstinate cases from the application of an infusion of jequirity. The inflammation resulting from its use was enormous, but when the sloughs dropped off the underlying tissues presented no trace of the disease, and perfect recovery ensued.

The actual cautery or the galvano-cautery has been employed with benefit in cases where, owing to the situation of the lesion, other methods could not be used. The dermal curette may be used with advantage in many cases.

The deep-seated and the papillary varieties of epithelioma can be successfully extirpated only by the knife. Thorough and early excision, followed by the transplantation of a flap of sound skin, is a procedure that has, in the hands of Garretson and others, given brilliant results. After the neighboring lymphatic glands become implicated all operations are futile, but the fetor of the discharge may be lessened and the pain somewhat relieved by the daily use of a weak citric-acid lotion.

Prognosis.—The prognosis varies with the age of the patient, the form, duration, and location of the disease, and the presence or absence of glandular involvement. The superficial variety may remain for years without affecting the general health, and if the lesions be thoroughly removed, will usually not recur. The deep-seated variety is always a grave disease. It pursues a rapid downward course, if let alone, and frequently recurs after attempted extirpation. The papillary variety is the most malignant form of the disease. It almost invariably recurs after operation, and ends fatally within a year or two from its first development. In epithelioma of the tongue and of the mucous membranes the prognosis is also bad. Involvement of the lymphatic glands points to a fatal termination of the disease. The older the patient, the worse the prognosis is. Degenerative processes once initiated in the very aged tend to continue, and removal of the epitheliomatous lesion in such patients does not usually arrest the progress of the disease.

SARCOMA CUTIS.

Synonyms.—Cutaneous sarcoma—Sarcoma of the skin.

Sarcoma cutis is a malignant disease, characterized by the formation of sarcomatous new growths in the skin and subcutaneous connective tissue.

Symptoms.—In some rare cases the internal organs are those which are first affected and the integument is involved secondarily, but in the majority of cases the skin is the primary seat of the disease. The symptoms vary in accordance with the type of the malady. In non-pigmented sarcoma, which is the least malignant variety, the new growths are usually single and limited to the superficial tissues. They first appear as small, round, firm nodules of a reddish or pink color, varying in size from that of a pea to that of a hazel-nut. They are usually found in the apparently healthy skin, but in some cases they are developed upon a pre-existing mole, wart, or cicatrix. They grow rapidly, and frequently attain the size of an orange, but eventually break down and ulcerate. They are not painful, however, and do not involve the general system for several years.

In melanotic sarcoma, which is the variety most frequently met with, the new growths are numerous and exquisitely painful. They consist of small, round, hard nodules that vary in color from brown to blue and black. They usually first appear upon the skin of the hands, feet, and genital regions, but rapidly extending, increasing in number and size, they invade every portion of the body. Occasionally some of the nodules disappear by absorption, leaving a pigmented cicatrix to mark their former place. More frequently, however, the adjacent nodules coalescing form large, irregular tubercles or masses which become the seat of ulceration. Finally, the internal organs become infiltrated with similar masses, and the patient dies of exhaustion. This is the most malignant form of the disease. The rare affection which Duhring, Hebra, and Geber have described under the title of "inflammatory fungoid neoplasm of the skin," is probably another variety of sarcoma. It is characterized by the development in the skin of a number of pigmented, infiltrated patches and prominent fungoid tumors. The tumors are usually of large size and deep red or violet color. They are smooth at first, but soon become ulcerated and excoriated, presenting a repulsive fungiform appearance. Sometimes these lesions spontaneously disappear, but others appear from time to time until the end is reached.

Diagnosis.—Sarcoma cutis may appear at any time after puberty, but it is rarely observed in persons under forty years of age. Its symptoms are so characteristic that there is little danger of confounding it with any other malady. Carcinoma and lymphadenoma present some points of resemblance to it, but the lymphatic glands are involved in both these diseases and are unaffected in sarcoma. It might be mistaken at first for an anomalous form of lepra, but the anæsthesia, atrophy, and deformity of that disease are absent here. Finally, sarcoma can be readily distinguished from lupus and syphilis by consideration of the history of the case and the character of the lesions.

Pathology.—The new growths are imbedded in the corium and subcutaneous connective tissue, and are identical in structure with those that occur in sarcoma of other organs and tissues. They are composed of spindle-shaped cells, or else large and small round cells, which are closed packed together and frequently enveloped by a delicate reticulated layer of connective tissue. They are richly supplied with blood-vessels. The melanotic growths contain an abundance of pigmented cells and pigment-granules.

Etiology.—Notwithstanding the many theories that have been advanced on this subject, the cause of sarcoma is still unknown. It is probable, however, that a disturbance of the trophic system is the chief factor in its production.

Treatment.—The treatment of this disease has been very unsatisfactory. When the tumors are single or few in number, the best results are obtained from their prompt excision. This procedure is useless, however, when the tumors are numerous, and, of course, when they involve the internal organs, impossible. In such cases life may be prolonged and pain lessened by the administration of small doses of arsenic in alternation with the bichloride of mercury, and by restricting the patient to a diet of milk and vegetables. In the final stage of the disease sufficient morphine should be given to make the patient comfortable.

Prognosis.—The prognosis is bad. Medicinal treatment is only palliative, and while early excision of the tumors may retard the progress of the disease, recurrence of it is usual, the patient generally dying from pain and exhaustion within three or four years from the first appearance of the lesions.

CARCINOMA CUTIS.

SYNONYMS.—Cutaneous carcinoma—Cancer of the skin.

Carcinoma cutis is a malignant disease characterized by the formation and deposition of carcinomatous material in the skin and subcutaneous connective tissue.

Symptoms.—The skin may be attacked by any of the varieties of carcinoma, but those most frequently observed are epithelioma, scirrhus, and melanosis. The former is always a primary affection of the skin or of the mucous membranes. It has already received separate consideration. Melanosis also is generally a primary affection of the integument. Scirrhus, however, is usually secondary to similar growths in other organs and tissues. In rare cases it appears, so far as we can judge, to be developed primarily in the skin. Two varieties of scirrhus have been observed upon the skin, the lenticular and the tuberous.

The lenticular variety is always secondary, and occurs most frequently in connection with carcinoma of the mammary glands. It is characterized by the development in the skin of several small, hard papules or nodules that vary in size from a small shot to a bean. They are slightly elevated above the surrounding surface. They vary in color from pink to dark-brown, and are surrounded by an inflammatory areola. They rapidly increase in size and number, and, as the disease progresses, the adjacent papules and nodules coalesce, and form large, irregular masses or fungoid tumors. In some cases the entire surface of the chest is infiltrated with the carcinomatous deposits, numerous nodules are developed, and the intervening skin becomes thickened and indurated so that the thorax seems to the touch to be encased in armor. This is the condition described by Velpeau as "*cancer en cuirasse.*" After a time, owing to the increasing pressure of the new material upon the cutaneous vessels, the vascular supply is diminished or cut off from the affected parts. Some of the nodules then undergo ulceration, others become gangrenous, and may be spontaneously extruded. Fresh nodules, however, are developed in other portions of the body, the lymphatic glands become hard and smaller, nutrition is interfered with, the patient becomes more and more emaciated, and finally perishes from exhaustion. More or less lancinating pain is present from the beginning to the end of the disease.

The tuberous variety is generally a secondary affection, but may make its first appearance in the skin. The lesions consist of large, hard nodules and tubercles that vary from the size of a bean to that of a walnut, or may be larger. They project above the adjacent cutaneous surface. They vary in color from white to dark-red or brown, and are generally present in large numbers. They are found on every portion of the body, but are especially abundant upon the hands and face. Their course is similar to the lesions of the lenticular variety. Ulceration, emaciation, pain, and exhaustion end the scene within a few years.

Melanotic carcinoma is characterized by the development in the skin of numerous small, hard, blackish papules or nodules. They are usually first observed on the hands, feet, or the genital regions. They increase rapidly in size and number, and soon involve the whole lymphatic system. The internal organs also become affected, and the patient finally dies of pain and inanition. This is the most-malignant variety of carcinoma, and often ends fatally within a year from the first appearance of its lesions.

Diagnosis.—The only diseases with which carcinoma could be confounded are sarcoma and lymphadenoma. Sarcoma, however, never attacks the lymphatic glands, while carcinoma, even at an early stage in its development, always does. Lymphadenoma involves the lymphatic system also, but it is a painless disease of long duration, and usually makes its first appearance in the cervical glands. Carcinoma, on the contrary, is of comparatively brief duration, is accompanied by more or less pain and by marked emaciation, and does not involve the cervical glands until late in the progress of the disease.

Pathology.—The lesions of cutaneous carcinoma are composed of a dense network of connective tissue arranged in alveolar masses, the meshes of which are filled with numbers of small, round, epithelial cells.

Etiology.—The cause of carcinoma is still involved in mystery. The most plausible theory of its production is that which supposes it to be due to a disturbance of the functions of the trophic system.

Treatment.—The treatment of cutaneous carcinoma is very unsatisfactory. Excision of the nodules is painful, and does not retard the progress of the disease. Internal medication seems to be equally powerless to effect a cure. Considerable relief, however, can be afforded by eliminating all meat from the patient's diet, and administering small doses of arsenic in alternation with the bichloride of mercury. Morphine must also be given when necessary.

Prognosis.—The prognosis is invariably bad. No patient has ever recovered from this affection, and the majority of cases end fatally within two years.

KELOID.

SYNONYMS.—Kelis—Kelos—Cheloide.

Keloid is characterized by the presence of flat, round, or irregularly shaped and variously sized, elevated, white, or pale-red, smooth, firm, but somewhat elastic, nodules or patches, ridges, or projections of new growth of connective tissue.

Symptoms.—The disease begins as a small, pale pea- or ordinary bean-sized tubercle or nodule, well imbedded, but yet slightly elevated above the skin. The growth, which may be single or multiple, usually presents at first but one tumor. This slowly increases in size, varying much from time to time in form, appearing now as an oval tumor sending forth projections into the surrounding skin, contracting and distorting the part (the central portion and the processes of the tumor resembling the body and legs of the crab), and anon as a simple ovoid or nodular tumor having no projections whatever into the healthy skin. Sometimes the tumor is elongated, cylindrical, or else appears as disks or plates, or as cord-like elevations, bands, or ridges, forming a star-shaped or radiating network, assuming protean forms in the skin.

The tumor varies not only in form, but in size, which may range from that of a small pea or bean to that of a large turnip. The lesion sometimes appears about the size of a well-filled pea- or bean-pod. It is always well defined, looking as if implanted in the skin, but really elevated from one half to several lines above it. The usually prominent central part or body of the lesion is surrounded by radii which plunge from its periphery under the skin, extending like roots into and appearing to be lost in the tissue of the part. Now and then the central part or body is somewhat depressed, and the border elevated as a rim around it. In color it may be white and shiny, or of a pink or reddish patchy effect. Its surface is smooth, the epidermis covering it being thin and tense, or else wrinkled, hairs and sebaceous glands being usually absent. Although only a few may be met with, the sweat-glands in some cases are present in large numbers. To the touch the tumor is firm but elastic, the central portion being denser and harder than the circumference, the processes having all the rigidity of bands of fibrous tissue. It generally occurs, as has been mentioned, singly, but sometimes two or more patches may be observed. The situation in which the tumor is most frequently met with is the trunk, especially the sternum, the sides of the chest, the mammæ, the back, and the anterior and posterior parts of the neck. In the majority of cases it occurs on the sternum, from which it may spread out processes parallel with the ribs. It is also met with on other parts of the

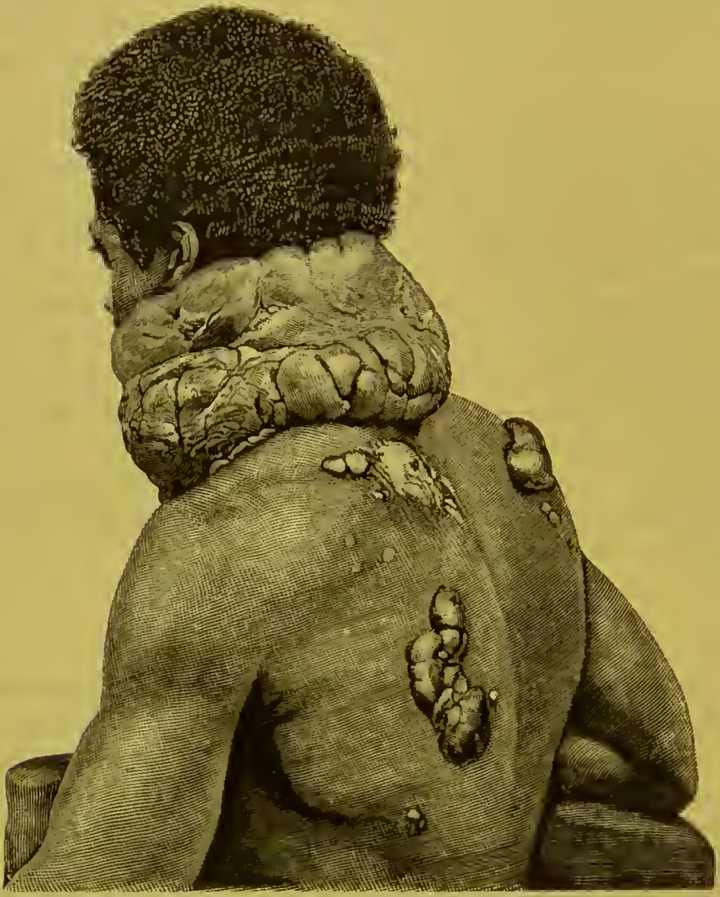

Fig. 17.—Keloid tumor. (From Photographic Review of Medicine and Surgery.)

body, but least frequently on the face, concha, and lobule of the ear, the flexor and extensor surfaces, the genitals, and the dorsal portions of the hand and foot. Pain, as has been stated, follows pressure of the tumor. Pain from it may also be spontaneous, of a pricking or burning character, and sometimes itching is experienced. These symptoms are seldom constant, but occasionally the pain may be so steady as to be most annoying. The lesion of keloid, once formed, usually continues throughout life; its course being either rapid or slow, usually slow. After the tumor has attained a certain size, its further growth is likely to be arrested, and, if that happens, it becomes stationary. It never ulcerates, and it shows no tendency to undergo any change, save in the rare cases in which complete involution occurs.

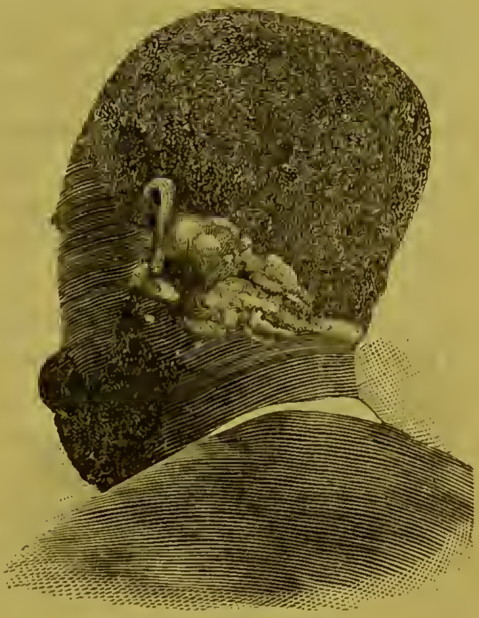

FIG. 18.—Keloid in Negro.

Diagnosis.—The diagnosis of keloid is, as a general rule, easy; its course, characteristic appearance, and location being usually sufficient to distinguish it from any other affection. It may be confounded with simple cicatrix, from which, however, it may be distinguished by its course, form, color, consistency, pain on pressure, the frequent recurrence of spontaneous pain, and sometimes by the sensation of itching.

Pathology. — True keloid is a new growth of connective tissue situated in the corium. The growth is composed of closely packed fibres that are generally arranged parallel to the surface of the tumor. Upon examina-

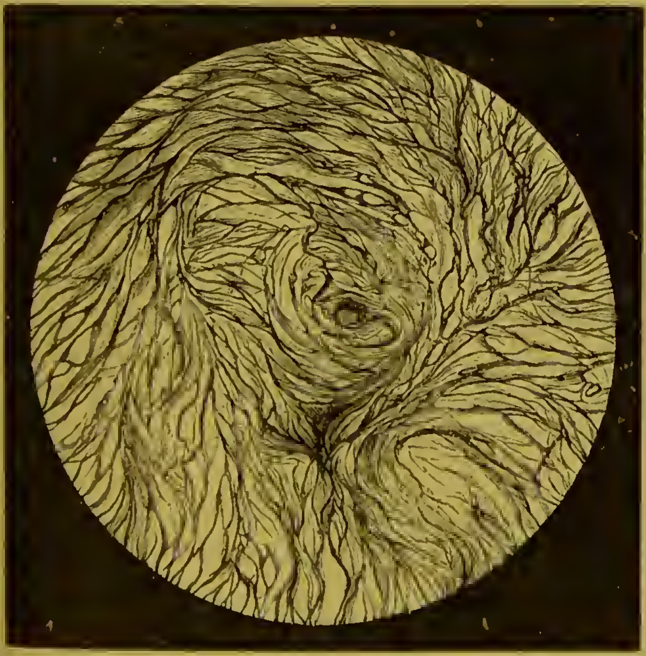

FIG. 19.—(Photo-micrograph.) Section of keloid. Magnified 75 diameters.

tion of several specimens removed from the negro with true keloid, illustrated in the sketch, the following observation was made :

The horny and mucous layers of the epidermis and the papillæ appeared normal. Beneath the papillæ there was a new formation consisting of connective-tissue bands, the fibres of which were densely packed together, and ran parallel with the long axis of the growth and the surface of the skin. A few spindle-cells or nuclei were apparent. Along the vessels, especially the arteries, the sebaceous and sweat glands had entirely disappeared. In addition to the above changes, Piffard records thinning of the horny layer, the rete as rather overdeveloped, and the papillæ as enlarged, with broad, flat tops. Schwimmer * reports also atrophy of the epidermis, the development of curious vessels and nuclei, absence of the papillæ, with atrophy of the hair-follicles and sebaceous glands. Warren † and Neumann have both proved that the disease originates in the blood-vessels of the part.

Etiology.—Keloid occurs in both sexes and at all ages, but more commonly in persons in middle life, beginning usually at puberty. It may develop spontaneously, or from an irritation, injury, or from a simple hypertrophic scar. It has been noticed to follow, especially in the negro, who is predisposed to keloid, an injury to the integument from the lash of a whip, strap, or other instrument; from burns, blisters, or punctures ; from the bite of the leech or the piercing of the ears. It may follow from boils, carbuncles, pustules, especially those of varicella and variola, acne, lupus after scraping,‡ psoriasis,# and from syphilitic ‖ and scrofulous eruptions. Cases are also recorded in which it appeared after operations and wounds.

An instance in which a large, true keloid lesion of the forearm had followed a most insignificant wound, a mere scratch of the skin, came under my observation in the case of a practitioner who, exposing his right arm during one of my clinics, stated that the affection had followed a very slight abrasion of the part while he was attending a case of confinement.

Treatment.—Internal and external treatment are seldom of much avail, either to lessen, to remove, or to destroy the growth. The paroxysmal pains and the deformity that the disease occasions often cause patients to ask for relief, and then it becomes necessary to attempt some treatment that may fulfil both indications. The pains

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[*] Abstract in Philadelphia Medical Times, September 10, 1881.

[†] Sitzungsbericht der k. Akademie der Wissenschaft, 1868.

[‡] Keloid after Scraping; cases reported by Mr. Clutton, Mr. Lucas, and Mr. Morant Baker. British Medical Journal, January 20, 1883.

[#] Keloid following Psoriasis; reported by Henry S. Purdon, M. D. Journal of Cutaneous and Venereal Diseases, April, 1883.

[‖] A Case of Keloid following Syphilis, by Dr. Taylor. Journal of Cutaneous and Venereal Diseases, July, 1883.

may sometimes be lessened by full doses of quinine. Wilson prefers first to regulate the general functions of the system, to this end maintaining a steady course of Donovan's solution in doses of ten drops three times a day, or of the protioduret of mercury in combination with guaiacum and the oxysulphuret of antimony. Cod-liver oil, arsenic, the chloride of ammonium, the iodide of potassium, and the other alkaline iodides are remedies that have been recommended as sometimes having an influence on the growth.

The injection of morphine and cocaine in or around the growth is often serviceable for the pains, and, as well, the application of chloroform, aconite, and camphor, alone or combined with belladonna, opium, and arnica, may lessen or relieve the pain. Hot and cold applications may be employed for the same purpose. The pain is sometimes allayed by the application of the galvanic current or by occasionally puncturing the tumor with a small knife, which process also assists in promoting absorption of the tumor. Vidal,* in order to promote absorption, employs multiple scarification, from which mode of treatment he reports for several cases relief from pain. Operative measures, whether performed by the knife or caustics, are generally inappropriate, the growth almost invariably returning, sometimes even increased in size. An operation may be necessary when the tumor becomes very large, or interferes with the function of the part, but, if performed, it will afford only temporary relief.

Duhring states that caustic potash offers the most efficient remedy if an operation is demanded, but he further adds that the idea of employing it should not be entertained if the disease is increasing. Piffard relates a case in which incisions into the tumor, followed by applications of acetic acid, reduced the growth until it was hardly appreciable. Absorption will occasionally follow slight compression with any ordinary plaster, such as one of resin or soap. Perhaps for the purpose of obtaining additionally the effect of medication, it would be better to use the mercuric, belladonna, or the lead plaster. Ointments of lead, mercuric oleate, and iodide of potassium are also useful. Wilson derived benefit from painting the growth with a drachm of iodide of potassium and an ounce each of soft soap and alcohol, followed by the constant application of lead-plaster. Collodion, or iodine, or liquor plumbi subacetatis are also useful applications painted over the growth. Iodide of ammonium or lead is likewise valuable, employed in the form of an ointment.

Prognosis.—The prognosis of the disease is usually unfavorable. It may, after a time, be arrested and cease entirely to grow, and yet quiescently persist during the lifetime of the patient. This, too, may happen without interference with the general health. Upon removal of the tumor it generally returns, often much larger than the original growth. Spontaneous involution of the disease has been observed to occur in some cases,* but such are always rare.

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* Gazette des Hôpitaux, January 29, 1881.

Directions for the treatment of *cicatrices of the skin* may be appropriately introduced here. Cicatrices, as stated in the chapter on symptomatology, are new formations that occupy the place of normal tissue that has been destroyed by various morbid processes. They may occur as the result of burns, scalds, or wounds, or they may follow surgical operations. In the majority of cases, however, they are the result of ulcerative destruction occurring in the course of various diseases. They are composed of connective tissue, but do not contain any blood-vessels, nerves, lymphatics, or glandular structure. There are three varieties of cicatrices—those which are level with the surrounding surface, those which are depressed below it, and those which are elevated above it. Cases of the first two varieties rarely require any treatment, and, as a general rule, should not be disturbed unless they become excessively painful. The last, or hypertrophic variety, is exposed to more or less irritation, is consequently liable to undergo any of the forms of malignant degeneration, and is also productive of great deformity. If there be sufficient cutaneous tissue surrounding the lesions of this variety, they should be removed by excision, and the edges of the wound should be carefully approximated. If this procedure be impossible or unadvisable, an effort should be made to secure partial absorption of the tissue forming the cicatrices by repeated applications of nitrate of silver or of tincture of iodine. Marked improvement can be obtained by the persevering employment of gentle friction with fine sand or pumice-stone. In obstinate cases, or in cases in which a large extent of surface is involved, as after small-pox, excellent results can be obtained by painting the surface with collodion, thus securing a gentle but uniform and continuous pressure upon the lesions.

MOLLUSCUM FIBROSUM.

SYNONYMS.—Molluscum simplex—Fibroma molluscum—Molluscum pendulum.

Molluscum fibrosum, a connective-tissue new growth, is characterized by the development in the skin of firm or soft, rounded, painless, sessile, or pedunculated tumors, varying in size from that of a split pea to that of an egg, or even larger.

Symptoms.—In this disease, which consists of the formation of connective-tissue tumors, they may occur singly or in numbers, but more commonly in numbers. They may be so small as not to be visible, and can be detected only by passing the fingers over the skin; but, on the other hand, they may be so large as to be most prominent and perceptible. Their shape, even upon the same surface, varies greatly.

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* See report of case by Dyce Duckworth, British Medical Journal, October 8, 1881.

They may be connected with the subcutaneous tissue by a broad base, or may hang from the skin by short pedicles. The skin covering the growths may be, and is usually, normal, but it may be tense, giving the surface a pink or reddish color; or, again, it may be loose, hypertrophied, or atrophied. In consistency, some of the tumors are soft, and this is most usual, while others may be fibrous and hard. They are generally multiple, and are present in various stages of development, and irregularly distributed over the body, with perhaps preference for the trunk. Their size as well as their shape varies considerably, most of them, however, being small, about the size of a pea, while some may be as large as a child's head. They are not attended with subjective symptoms, and, if large, occasion physical annoyance only through their bulk and weight, and mental annoyance through deformity. They may occur upon any part of the body at any time of life, but they most frequently appear in childhood. After forming they generally grow slowly, and having reached a certain size, remain constant throughout life. Sometimes, when large, they occasion by their pressure inflammation, ulceration, and gangrene.

Diagnosis.—The difference of diagnosis between this disease and molluscum epitheliale has been pointed out fully under the head of the latter. The location of the tumors beneath the skin, the absence of any depression or aperture upon their summits, ought to be all-sufficient to determine the character of this disease.

Molluscum fibrosum may also be mistaken for multiple neuromata, or for lipomata. But the pain associated with the former, and the lobulated and soft feel of the latter, will prevent mistake and decide the diagnosis.

Pathology.—The portion of the skin in which molluscum fibrosum has its origin is said by Fagg and Hawse to be the connective-tissue walls of the hair-sac; but Rokitansky, on the contrary, asserts that it begins in the connective tissue of the corium. Virchow, Kaposi, and others hold a view dissimilar to both, and state that it has its origin in the connective tissue, around the fatty tissue. The last-named view is the one now most commonly accepted. The tumors are bound down to the subcutaneous connective tissue by their pedicles. An incision made into one of them exposes a white, fibrous mass enveloped in a capsule of dense connective tissue. In the peripheral portion the fibres are not so coarse as elsewhere, but have more the appearance of the corium. The central part of the tumor is soft and pulpy, and by pressure a small quantity of yellowish fluid may be made to exude from it. Young tumors are found to consist of gelatinous, newly formed connective tissue, the cells being copious, with irregular and fine fibrillæ. Old tumors, on the contrary, are made up of dense, closely packed fibrous tissue, and at times exhibit considerable vascularity about their bases.

Etiology.—The cause of the disease is unknown. It has been said to be hereditary, because occasionally appearing in several successive generations. Non-hereditary cases, however, have been recorded of its development in several persons of the same family. Instances have been reported in which it followed local irritation, but many cases occur in which this cause has borne no part. Hebra found in his observation of the disease that persons attacked with it were invariably of weak physical and mental organization.

Treatment.—The tumors, if not very numerous, may be removed by excision, ligation, or cauterization. The galvano-cautery is probably one of the most successful methods of employing cauterization for their removal.

Prognosis.—The disease ordinarily lasts a lifetime. Spontaneous involution rarely occurs. The tumors generally increase in size and number until they reach a certain development, after which they remain fixed in size and character. As a general rule, they do not endanger life, but occasionally, through causing some constitutional derangement of the system, they produce fatal results.

XANTHOMA.

SYNONYMS.—Xanthelasma—Vitiligoidea—Fibroma lipomatodes—Molluscum cholésterique.

Xanthoma is a connective-tissue new growth, characterized by the development of one or more yellowish, variously shaped and sized, smooth, or slightly elevated patches or tubercles.

Symptoms.—The disease appears in two forms, xanthoma planum and xanthoma tuberosum, which may be described as follows:

XANTHOMA PLANUM consists of variously formed and sized patches situated in the corium. They are usually sharply defined, flat, smooth to the touch, the skin appearing perfectly natural. At times they are slightly raised above the surrounding skin. In color they are more or less yellowish, their tint having often been compared to that of chamois-skin. In shape they are generally rounded or elongated. In size they vary from that of a pin's head to that of a pea, or may be larger. They usually begin as very small patches, and slowly increase, until they attain a certain size, after which they remain at a standstill. Their most common seat is on the eyelids, particularly the upper lid. They also appear upon other portions of the face and on other parts of the body. The patches have been observed on the lips, palate, trachea, in the spleen, the lining membrane of the bile-ducts, and in the abdominal muscles. One or more patches may occur on the same or different regions, and if they approach each other may finally coalesce.

XANTHOMA TUBEROSUM appears as papules or tubercles of varying shapes and sizes. They are generally round, and from the size of a pin's head to that of a pea, or larger. Their color, consistency, and other characteristics do not differ much from the variety just described, except that they generally occur upon the neck, trunk, and extremities. Occasionally they are slightly painful. They sometimes occur in connection with xanthoma planum.

Xanthoma is a disease of middle or advanced life, but it may occur at any age. It is more frequently encountered in women than in men. The lesions are generally single, but in rare instances are multiple, invading a large part of the body, and sometimes the mucous membranes. As a general rule the disease begins as the macular variety, in the inner canthus of the eyelids. It usually develops gradually, runs a slow course, and lasts a lifetime. It may, on the other hand, as in the cases of Korach and Hertzka, develop rapidly within a few weeks, involving almost all the body, and be complicated with icterus and pruritus. The patches at times disappear spontaneously.

Diagnosis.—The lesion occurring in xanthoma is so characteristic in form, color, and situation, that it cannot usually be mistaken for that of any other disease. Milium occurring on the face may bear some resemblance to xanthoma, but the doubt can readily be resolved, for pressure will remove the contents of milium, while it will in no wise affect the lesion of xanthoma, or at best will only force out of it some bloody serum.

Pathology.—Xanthoma is a connective-tissue new growth which may be followed by fatty degeneration. The most accepted view of the disease now is that given by Pye-Smith, who has made a most careful investigation of it. He concludes that it is a chronic hyperplasia of the deeper layer of the cutis in which, on the one hand, the papillæ and the epidermis, and on the other, the subcutaneous tissue, are only secondarily involved. The inflammation-cells, or young leucocytes, may be converted into new connective-tissue cells and be finally transformed into adipose tissue, or, instead of becoming so changed, they may take on fatty degeneration, resulting in a detritus of oil-drops, calcareous masses, and cholesterine crystals.

Etiology.—The cause of xanthoma is unknown. In a few instances it is hereditary. Kaposi, Hutchinson, Chambard, Pye-Smith, Fagge, Murchison, and others have observed the disease in connection with affections of the liver. Jaundice, especially, has been noticed to occur in very many cases just before or during the course of the disease. The claim, however, that the affection is dependent upon a diseased condition of the liver has not been substantiated, as in very many cases observed by Brachet, Monnard, Schwimmer, Fox, Carry, and White, this organ was not affected.

Treatment.—Wilson and Besnier both believe in constitutional treatment for the disease, and they report good results from cases managed in that way. Wilson suggests nitro-muriatic acid, with now and then a blue pill, and after a time arsenic. Besnier reports the rapid removal of the tubercles from the administration, first of phosphorus and then of turpentine.

In the majority of cases local treatment is the only practicable way of removing the deformity. Caustics, the curette, and the knife are the only effective resort for the destruction and removal of the growth. Great care, however, should be taken in excising the diseased part to so perform the operation as to prevent ectropion.

Prognosis.—Xanthoma, beyond the disfigurement, gives rise to no discomfort. It may continue throughout life, or it may disappear. According to Legg, its disappearance is owing to spontaneous resolution.

COLLOID DEGENERATION OF THE SKIN.—Wagner has referred to this disease under the title of colloid milium, and Besnier as colloid degeneration of the skin. The disease occurs principally on the face, neck, and upper extremities. It is found in persons during middle and old age, although Liveing recently reports* several cases in young persons. The affection appears in the form of many small, flat, or slightly raised, rounded, and discrete growths, varying in size from that of a pin's head to that of a split pea. In color they are a light yellow, with a shining and translucent appearance. They thus seem to contain a fluid, but, on examination, are found to be solid or at least semi-solid in structure. They undergo a change by first becoming, as Liveing shows, umbilicated, whereupon they inflame, scab, and dry up, exposing a mark, but not a scar. The lesions resemble xanthoma, both from their situation and appearance, and may be a degenerative form of it. They differ from xanthoma lesions by the fact of their translucency and of the difference in their course, as described. Besnier has pointed out that the disease consists of a degeneration of the connective tissue of the corium.

LIPOMA.

SYNONYMS.—Fatty tumor—Adipoma—Steatoma.

Lipoma is characterized by the development of circumscribed new formations composed of fatty tissue. They are usually seated in the subcutaneous connective tissue, but are more or less elevated above the surrounding surface. Their range in size is very great. Sometimes as small as a split pea when first observed, they frequently reach a diameter of several inches. They are soft and smooth to the touch, and more or less globular in shape. Although generally lobulated, they but seldom affect the color of the skin where they are situated, beneath which they are slightly movable. They vary in number from one to a hundred or more. They pursue a benign course, never becoming inflamed unless subjected to irritation. They are not attended with any pain, except in rare cases, when they press upon a nerve-fibre. In some cases they undergo fatty or else calcareous degeneration. Large lipomata may become pedunculated, or they may break away from their attachments by force of gravity, and move from place to place beneath the surface.

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* Colloid Degeneration of the Skin, by Robert Liveing. British Medical Journal, March 27, 1886.

Diagnosis.—Fatty tumors can usually be distinguished without difficulty from all other new formations by their soft, semi-fluctuating consistency, their painless nature, their normal color, and their more or less lobulated character.

Pathology.—Lipoma consists of a variable number of large fat-cells surrounded by a capsule of connective tissue.

Etiology.—The etiology of these growths is not known.

Treatment.—Excision is the only effectual treatment, and it should be promptly resorted to in all cases where the tumors are few in number, or are a source of inconvenience.

ANGIOMA.

Synonyms.—Nævus vascularis—Nævus sanguineus—Nævus flammeus—Gefässmal—Taches de vin—Telangiectasis—Angio-elephantiasis—Tumor cavernosus—Fungus hæmatodes — Aneurysma spongiosum — Claret-stain — Port-wine stain — Mother's mark.

Angioma is that pathological alteration of the skin which consists wholly or in part of permanently enlarged or newly formed blood or lymphatic vessels.

The angiomata are therefore divided into those which contain blood-vessels and those which are formed of lymphatics. The former, consisting of blood-vessels only (angiomata propria), are described under the above subdivisions as nævus vascularis, telangiectasis, angio-elephantiasis, and tumor cavernosus.

Nævus Vascularis.—Vascular nævi are new formations situated in the skin and subcutaneous connective tissue, composed mainly of blood-vessels that are either congenital or appear shortly after birth. Their form and size vary. They may be flat or slightly elevated, well- or ill-defined, distinct or faint smooth spots on the skin, which are light, bright- or dark-red, violaceous, bluish or livid in color, round or irregular in shape, and from the size of a pin's point, a pea or bean, to that of the palm of the hand, or large enough to embrace an entire limb or region. Sometimes they appear as uniform red patches, or have varying shades of red, being traversed by tortuous and dilated capillaries, the surface being generally or partially raised. Finally, nævi may appear as erectile, turgid, vascular, pulsating tumors, with a smooth, but more frequently a rugous, surface. They are more often observed in men than in women. Usually single, but sometimes multiple, they are most commonly seen on the head, especially the face, cheeks, lips, nose, eyelids, forehead, and scalp. They also occur upon other parts, more particularly on the upper extremities, as on the back of the hands, the trunk, the penis, and labia, the lower extremities being rarely invaded. They may appear alone, as already described, but they are occasionally associated with warty growths, and may exhibit pigmentation. They are easily compressed and deprived of their characteristic color by pressing the blood out from the parts. Their color thus becomes fainter, sometimes almost imperceptible, when the blood in the capillaries lessens during syncope, or as the result of the development of another disease. On the other hand, an accession of blood during mental excitement, after meals, and in changes of temperature, often renders them more turgid and highly colored. Their course varies. The form, size, and condition of nævi present at or after birth may remain stationary. They may retrograde or else continuously increase in size, spreading superficially at one time, and at another deeply. The more vascular they are, the more liable are they to become larger.

Sometimes, especially in the simple flat form, they disappear spontaneously, usually early in life. Sometimes a complication arises, either spontaneously or from external causes, with inflammation and gangrene, which complication may occasion either partial or complete involution, or either superficial or deep spreading of the nævi, which may finally assume a malignant character.

TELANGIECTASIS.—Telangiectases consist of dilated and newly formed capillaries that are, as a general rule, acquired during adult age. They may make their appearance either as round, oval, or irregular spots, as a plexus of enlarged vessels in the skin, or in the form of tortuous, branching lines, which may vary in color from a light-red to a dark or even a blue tint. Their size varies from that of a minute point to that of a pea or a small penny, occupying a greater or lesser extent of the surface traversed by the capillaries of the part. They may be smooth, on a plane with the surrounding skin, or be raised prominently above it assuming a berry-like or warty appearance. They appear, as remarked, either as single or multiple ill-defined patches, or as a net-work of capillaries of serpentine lines. Any part of the body may be attacked by them, but usually it is the face and chest. Generally they do not develop until adult or middle life, are unattended with any subjective sensation, and with the advance of age slowly increase in size and number. They occasionally disappear spontaneously, but usually remain permanently. Occasionally telangiectases, due to injury, may bleed freely, particularly when they invade mucous-membrane surfaces. The transient or permanent dilatation or new growth of vessels which occurs as the result of some other disease of the skin, and which is seen sometimes in acne, rosacea, lupus, and other affections, is a symptomatic telangiectasis.

ANGIO-ELEPHANTIASIS.—Angio-elephantiasis is a form of vascular new growth which appears as large, pendent, soft, and elastic tumors seated in the skin. These tumors, which have their distinctive color, may occupy a large portion of a limb. Taken in the hand the mass has a sponge-like feeling, being easily compressed and reduced in size, but returning to its former volume when the pressure is removed. The tumors have their origin primarily in the subcutaneous cellular tissue, which sometimes makes up the larger part of the mass. Occasionally, the vessels preponderating, the growth is principally vascular. The new connective-tissue growth therefore becomes the most active factor in the disease, and in this respect it differs from common nævi. The tumors increase rapidly in number, and by their continuous growth occasion atrophy of the muscle, nerve, and bone. Painful neuromata are sometimes developed, and they exercise a most pernicious influence on the general health.

TUMOR CAVERNOSUS.—Angio-cavernosus is also a form of vascular new growth, but it seldom occurs in the skin. It begins in the subcutaneous cellular tissue, in the form of nodules from the size of a small pea to that of an ordinary bean. In shape they are round or oval, covered with normal skin and, owing to their surrounding attachments, are only slightly movable. The growth, as a general rule, occurs in single nodules, but it may be represented by many. They are most frequently met with on the upper and lower extremities, along the course of the cephalic or the saphenous vein, but also, though more rarely, on the face, neck, and shoulders. The tumor increases slowly in size and gradually takes on the same appearance as the ordinary nævus, but differs very much from the latter in its anatomical structure, and is spontaneously and by pressure painful. It consists of a dense framework of connective tissue enclosing both large and small cavities, through which the blood freely circulates and communicates with some of the larger adjoining vessels. The tumor is in structure similar to the cavernous tissue of the genital organs, and is both erectile and compressible.

Diagnosis.—There should be no difficulty in recognizing the angiomata just described, the variously shaped, flat, red patches, or network of capillaries, which persist and are painless, or the prominent dark-red or blue erectile tumors, both of which are sufficiently expressive.

Pathology.—Nævi, which are generally situated on the upper part of the corium and the subcutaneous connective tissue, consist of both arteries and veins, some of which are of new formation. The dilated and hypertrophied vessels are also included in more or less connective-tissue new growth, a feature scarcely perceptible in telangiectasis. Hair-follicles, sebaceous and sweat glands, are also sometimes present in nævi, which, as has already been stated, may become verrucose or pigmented. The flat or simple angioma, nævus flammeus, consists mainly of dilated and deformed capillaries situated in the upper layers of the true skin. In the nævi proper or lobular angioma there is more or less connective tissue between the convoluted blood-vessels, which are inordinately numerous in angio-elephantiasis. The cavernous angiomata, as has already been shown, are made up of connective tissue in structure like the ordinary erectile tissue of the corpora cavernosa. The color of the nævi depends upon whether arteries or veins predominate in it, and also upon whether the growth is superficial or deep.

Etiology.—The cause of the different kinds of angiomata just described is obscure, and this is particularly true with relation to angio-elephantiasis and tumor cavernosus. Nævi, according to my own opinion, are, notwithstanding the contrary view held by some writers, sometimes directly traceable to an impression made upon the mother during pregnancy. I recall an instance, some years ago, that came under the observation of Prof. William H. Pancoast and myself, which was as follows: We were about to operate for varicocele on a young man, and his sister-in-law, who was in the fifth month of pregnancy, insisted on having the process of the operation explained to her. This Dr. Pancoast proceeded to do, taking from his case a large round plate and carefully explaining the details of the operation. We were both present some months later at the birth of the child of which the sister-in-law was at that time pregnant, and, to our astonishment, there was on the scrotum of the infant a well-marked nævus, having all the appearance of the round plate shown and described to the mother. In another instance I happened, a few years ago, to explain to a lady in my waiting-room an unavoidable detention, saying that I had been engaged in removing a large wart from a patient's face. She made several inquiries as to the suffering caused, and as to the probable result of the operation. I never thought of her pregnancy, and was surprised, on the birth of her child, to observe a small nævus on the right cheek, which recalled the scene in my office. Similar statements have occasionally been made to me by physicians, showing that nævi may sometimes be due to an impression made upon the mother during pregnancy, and that the belief in that causation is not unscientific, as has been stated by some writers upon the subject, but is well founded. Telangiectases may, like all the other angiomata, sometimes arise from an obscure cause, but they can occasionally be traced to a direct injury of the part or to some obstruction in the circulation arising from a local disease.

Treatment.—Angiomata increase rapidly in size, occasion deformity, or give rise to inconvenience, requiring treatment when situated on exposed parts of the body. If, on the contrary, these conditions are absent, it is far better to postpone all active treatment as long as possible, as the disease may possibly undergo spontaneous involution, particularly in young children. In case it be considered, for the reasons given, best to undertake the treatment of the growth, several methods may be resorted to for the purpose of removing the deformity by rendering the skin more normal in appearance. This object can be accomplished only by either destroying the new growth, or by obliterating the continuity of the abnormal capillary vessels, thus interfering with the supply of blood through them. In attempting to secure this end, great care should always be exercised to employ such methods as will not leave a cicatrix more unsightly than the original disease. The application of various drugs has been recommended as effective with certain nævi, while as to all varieties one or another of the many surgical methods may be employed. In treating the growth by medicaments, the application of a mixture of one drachm of collodium to eight grains of corrosive sublimate is sometimes used with success. Neumann recommends a combination employed by Zeissl, of tartar emetic, eighteen grains, with two drachms of adhesive plaster, to be used in the case of small, flat nævi, or of those only slightly elevated above the level of the skin, especially in the case of those on the scalp. There is little pain attending this application, but there is free suppuration, succeeded by a white, soft, and thin scar. Friction with croton-oil and other counter-irritants is sometimes attended with good results. Success is said by Dieffenbach * to follow the use of a compress of lint, saturated with liquor plumbi diacetatis, or with a solution of alum. Bligh † reports good results from painting the nævus daily with the former preparation. According to Beatty ‡ and Blair,# nævus can be treated successfully by local applications of liquor arsenicalis. Nævi of moderate size may be destroyed by employing some one of the caustic drugs. Thus nitric, sulphuric, or glacial acetic acid, or caustic potash, or nitrate of silver, or sodium ethylate, recommended by Richardson,‖ and numerous other caustics, may be employed for this purpose. Sodium ethylate should be prepared for use by adding metallic sodium to absolute alcohol, special precaution always being necessary regarding the latter, for, if it contains water, caustic soda and not pure sodium ethylate is formed. It is of advantage in applying the sodium ethylate, which can be placed on the part with a glass rod, to first denude the surface so that the drug will penetrate better. A dense black crust follows the application, which ought to be repeated once every two or three days, until the growth is decidedly affected, when it should be allowed to slough off spontaneously. The injection into nævi of carbolic acid, tincture of chloride of iron, the fluid extract of ergot, and similar drugs, as practiced at one time, is objectionable, owing to the inflammation, suppuration, sloughing, and hæmorrhage, with deformity, that may follow.

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* Wilson on Diseases of the Skin, 1852.

† British Medical Journal, September 25, 1880.

‡ British Medical Journal, November 24, 1883.

# British Medical Journal, April 19, 1884.

‖ Lancet, November 9, 1878.

The destruction of nævi, however, by some one of the surgical means, is, no doubt, the safest, surest, and most effective of all methods. If the nævus or telangiectasis is small and flat, it may be destroyed by puncturing the spot with an ordinary knife or needle, either alone or dipped in one of the mineral acids, iodine, or croton-oil. The same object may be accomplished by puncturing the growth with a red-hot needle or with one or more needles attached to from six to ten galvanic cells. This electrolytic method is one of the most appropriate of all methods now employed. Although painful, the operation is rapidly performed, is free from hæmorrhage and all other untoward effects, the scarring being comparatively slight, and the result generally very successful. The operation is performed as follows: One or more steel, platinum, or irido-platinum needles are connected with the negative pole of the battery, and, if the nævus be large, one needle or a charcoal point with the positive pole, both poles are introduced at the same time into the growth. The needles are allowed to remain in the tissue for a few moments, until gas-bubbles ascend through the orifice, a clot forms, and the spot assumes a bluish-white color. The negative needle is first removed. The current being reversed, what was the positive pole now becomes the negative pole, which in turn can be easily removed. Without reversal of the current, the latter needle would need some force to withdraw it from the parts. The positive needle alone or the negative needle alone may be thrust into the nævus. The action of either produces coagulation of the surrounding albuminous fluid. The negative needle alone, however, it should be explained, produces a better effect in the destruction of the tissues than does the positive needle alone, but the employment of the two needles in the manner just described is much preferable to that of either alone. Repetition of the operation once every three or four days may, in the course of several weeks, result favorably. Sloughing, suppuration, and other unpleasant effects may, according to Fox, follow the use of electrolysis, but these may generally be avoided if the application is carefully and judiciously made. Cauterization, with either the actual or galvanic or Paquelin's cautery, is a most excellent operative means that is always reliable and effective. In treating nævi in this way, the degree of heat should be graduated according as the growth is superficial or deep, superficial growth requiring a degree of heat only just sufficient to make an impression upon the tissues, while deep growth necessitates a white heat in order to reach the deeper structures. Dawson states that the galvano-cautery produces a clot that becomes rapidly organized. Whatever form of cautery be selected, it is much safer to treat but a part of the nævus at a time, particularly if it be large, and thus to avoid any undue inflammatory action from the application. Vaccination is a recent method from which most successful results sometimes follow.

Ragaine, Paul, and others have reported most satisfactory results from the method of treating erectile nævi by vaccination. In performing the operation it is better to use the bone vaccinator, or else an ordinary strong, thick needle, as the cuts from lancing are followed by considerable hæmorrhage, which washes away the vaccine matter. The surface or circumference of the nævus, or both, may be thoroughly scarified or punctured with the previously charged vaccinator-needle, the punctures being about half an inch apart, and the needle allowed to remain in the tissue a few moments to avoid too free flow of blood. The flowing blood and serum should be lightly mopped from the parts at the conclusion of the operation and the surface freely covered with more vaccine matter. Vaccination that passes through its usual course may be followed by the destruction of all or part of the growth, and in the event of the destruction of only a part, the same process should be again repeated for its entire removal. A seton, passed through or into the tumor, often obliterates the growth by setting up inflammation. Tilbury Fox treated in this way extensive and venous nævi by passing silk threads through various parts of the mass, and allowing them to remain until some slight inflammation was developed. On the removal of the threads the growth was sometimes found to have been obliterated by inflammation. Excision and ligation are operative means that are often to be preferred, both for small and large nævi, and particularly for angio-elephantiasis and tumor cavernosus. The ligature as well as the pins, if used, should be passed through the base of the growth and firmly secured to avoid hæmorrhage, and it is best, in the event that the tumor is large, to operate at first only on a portion of the growth, for the inflammation thus excited may possibly extend to the remaining part and accomplish the desired result. Incision with certain instruments devised for the removal of nævi has been highly recommended by some physicians. Squire claims good results from linear scarification, made with a knife having many parallel blades. The parts, which are previously frozen, are cut in an oblique manner, the incisions being repeated in the opposite direction in the course of a week, and the same process being continued until the growth has disappeared. Sherwell uses for a similar purpose an instrument having a number of needles arranged in bundles, the points being about one sixteenth of an inch apart. The needles can be charged with strong carbolic acid, or with a twenty-five-per-cent. or a fifty-per-cent. solution of chromic acid. The instrument is firmly pressed against the nævus, and by means of a spring is made to penetrate to the required depth. On the cessation of the bleeding, which may be arrested by pressure, the surface is washed with alcohol, and several applications of collodion are made to it.

Piffard employs a most admirable instrument, consisting of a bundle of wire hypodermic-syringe points firmly embedded in metal, which instrument is especially advantageous for carrying the medicated substance used beneath the surface.

Prognosis.—A positive prognosis cannot be given at once, or for some time after birth, regarding the course of nævi. As a general rule, a more favorable opinion can be given in the case of the simple flat nævi than in that of the erectile form. In both nævi and telangiectases it is better to watch their course and observe if their tendency be to remain stationary or to increase in size. The telangiectases seldom undergo any change, but nævi may during the first year of life undergo retrogressive changes and finally disappear, leaving a white scar. They may, on the other hand, increase in size either in infancy or at any period of life, invading the adjacent parts, producing degeneration and atrophy. They may not only be objectionable as deformities, but may, owing to being injured, sometimes bring about dangerous hæmorrhage. Unless they occasion inconvenience in either of the above events, or through neuralgia, as in the tumor cavernosus, or are found to be rapidly spreading, they should not be interfered with. The angio-elephantiasis frequently returns on removal, but the tumor cavernosus can be excised without much apprehension of any recurrence.

LYMPHANGIOMA.

SYNONYMS.—Lymphangioma tuberosum multiplex—Lymphangiectodes—Lymphatic warts.

This is an exceedingly rare affection, which was first described by Hebra and Kaposi. Cases have also been observed by Pospolow,* Van Harlingen,† and Graham.‡ It is characterized by the occurrence of a variable number of semi-transparent, reddish-brown, flat papules or tubercles. They are round or oval in shape, smooth and elastic to the touch, and are slightly elevated above the surrounding surface. When pressed they become pale and sink beneath the surface. They may be single, but are usually multiple. Hundreds were present in the case recorded by Kaposi. They are slightly sensitive to the touch, but not painful. They vary in size from that of a pin-head to that of a walnut. In Van Harlingen's case some of the lesions were like the tumors of molluscum fibrosum, while others were so compressible as to feel like distended bladders. They are usually congenital, or appear in early childhood. They slowly increase in size, but do not become malignant.

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* Viertelj für Derm. und Syph., 1879.

† Transactions of the American Dermatological Association, 1881.

‡ Transactions of the American Dermatological Association, 1883.

Diagnosis.—Lymphangioma may present a resemblance to the large papular syphilide, but the semi-transparency, the compressibility, the congenital character, and the permanency of the lesions of the former affection are so characteristic that they cannot be mistaken.

Pathology.—The tumors of lymphangioma are seated principally in the corium, and consist of enormously dilated and hypertrophied lymphatic vessels surrounded by a network of connective tissue.

Etiology.—The cause of this rare affection is unknown.

Treatment.—These growths may be removed by excision or cauterization, but as the cicatrices resulting from either procedure are even more unsightly than the original lesions, non-interference is the best plan.

Prognosis.—The lesions always pursue a benign course.

NEUROMA.

Neuroma is characterized by the development of a variable number of neuromatous growths in the corium.

Symptoms.—Neuroma of the skin is a rare disease. It may appear at any period of life, but the majority of the few cases which have been recorded occurred in persons of middle or old age. It is characterized by the appearance of one or more small, firm papules or tubercles, which vary in size from that of a split pea to that of a bean. They are firm and slightly movable, and are at first either painless or painful. They slowly increase in size, and gradually become hard and immovable. They are seated in the corium, extending into the subcutaneous connective tissue, and project above the surrounding surface. Other papules or tubercles appear in the vicinity of the original lesions and pursue a similar course. The skin between and over the lesions becomes infiltrated and scaly and more or less discolored. After a time, pain becomes a distressing accompaniment of the disease. In the case observed by Dr. Duhring the pain was of a paroxysmal character, but did not manifest itself until three years after the tubercles had developed. The paroxysms usually lasted for an hour or longer, and followed exposure to cold or damp air. They were also frequently produced by movement of the affected arm or by worry. The disease did not interfere with the nutrition of the arm, and the patient's general health was good.

Diagnosis.—Neuroma of the skin may present a striking similarity to carcinomatous or sarcomatous formations in the corium and subcutaneous connective tissue. The pain in neuroma, however, is paroxysmal in character, while in the malignant affections it is continuous. In doubtful cases an exact diagnosis can be made by excising one of the growths and subjecting it to a microscopical examination.

Pathology.—The neuromatous growths are composed of more or less hypertrophied non-medullated nerve-fibres, surrounded by connective tissue.

Etiology.—The etiology of this affection is unknown.

Treatment.—If there are only a few growths, they should be excised as soon as possible; but if they are numerous, the treatment that offers the best results consists in the exsection of a portion of the principal nerve supplying that part of the body upon which the lesions are developed. In Kosinski's case they occupied the outer and posterior sides of the right thigh and part of the buttocks, and were intensely painful when subjected to pressure. After various forms of treatment had been employed without relief, the small sciatic nerve was cut down upon, and one inch of it exsected. After the operation the pain diminished and finally disappeared. The lesions also became much reduced in size. In Duhring's case, nerve exsection was also employed with temporary relief.

MYOMA.

Myoma is a rare affection, characterized by the formation in the skin and subcutaneous connective tissue of one or more new growths composed of smooth muscular fibres. They are round or oval in form, and vary in color from pale red to yellow or dark brown. They are smooth and elastic to the touch, and are elevated above the surrounding surface. They vary in size from that of a split pea to that of a small orange, and vary greatly in number. In some cases only a single tumor is present; in others there may be thirty or forty. They are usually painless, but when a nerve-filament is pressed upon, or surrounded by the fibres which compose the tumor, pain of varying intensity and duration is observed. The lesions of myoma may be limited to a single region of the surface, or they may be disseminated over the entire body. They arise without any apparent cause, and, after attaining a variable size, remain stationary for an indefinite period. They invariably pursue a benign course unless injured or irritated, when they may become inflamed and painful.

Diagnosis.—Myomata can be distinguished from the lesions of neuroma, sarcoma, and carcinoma by their slow growth and by the absence of pain and constitutional symptoms. They cannot, however, be so readily distinguished from the lesions of molluscum fibrosum and other benign growths.

Pathology.—The lesions, the myomata, are due to proliferation or hyperplasia of the normal muscular elements of the skin. They consist, as remarked, principally of smooth muscular fibres. They may, however, be largely composed of connective tissue, and may then be properly termed fibromyomata. A rare form of tumors, consisting of a coil of small blood-vessels surrounded by a network of muscular tissue, has been described by Virchow under the name of myoma telangiectoides.

Treatment.—If the tumors become painful, or if they are so situated as to produce disfigurement or inconvenience, they should be removed by excision or destroyed by cauterization.

AINHUM is an affection limited to the negro race. It was first described by Silva Lima, of Bahia.* Cases have been reported by Drs. Hornaday and Pittmann,† of North Carolina, and Duhring,‡ of Philadelphia. The disease is characterized at first by a constriction of the skin at the base of one or more of the toes. As the morbid process continues, the constriction becomes more marked, and gradually forms a furrow that completely encircles the toe and slowly increases in depth, finally producing obliteration of the vessels and spontaneous amputation of the member. The little toe is usually the first affected, but any or all of the toes may become involved. The progress of the disease is very slow, requiring years for its completion. It is said to be of frequent occurrence on the western coast of Africa and in various parts of South America. It is also met with in Asia. It is rarely observed in the United States. Its cause has not been accurately ascertained. Some writers believe it to be neurotic in origin. It has also been suggested that it may be due to mechanical interference with the circulation, similar to the constriction caused by the application of a ligature at intervals during a protracted period.

CLASS VIII.

NEUROSES.

(*Neuroses.*)

HYPERÆSTHESIA.

HYPERÆSTHESIA is an exalted sensibility of the skin, unaccompanied by structural change. It occurs mostly as a symptom of either some functional or organic disease of the nervous system. Hysteria is the most common cause, but it occasionally follows brain and spinal diseases. It may in rare cases be idiopathic, but it is usually symptomatic. It may be local or general, circumscribed or diffused, unilateral or bilateral. In typical cases the skin becomes abnormally sensitive to the contact of the clothing or other objects, and even to that of the air. Hyperalgesia, or excessive sensibility to pain, is but a variety of hyperæsthesia. Hyperæsthesia may be temporary or permanent. The treatment should be the same as that for the disease of which it is a manifestation.

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* Gazeta Medica du Bahia, November, 1867.

† North Carolina Medical Journal, September, 1881.

‡ American Journal of the Medical Sciences, January, 1884.

ANÆSTHESIA.

Anæsthesia of the skin as a primary affection, even if there be any such affection, which is doubtful, is certainly rare. It is usually a symptom of some other disease, such as leprosy, syphilis, hysteria; or may result from wounds or other injuries, cold, fire-heat, or the toxic action from contact with certain drugs. It may be associated with a diminished or a complete loss of sensibility of the skin, and be either accompanied or unaccompanied with structural change in it. It may, like hyperæsthesia, be idiopathic or symptomatic, local or general, circumscribed or diffused, unilateral or bilateral.

Analgesia, or loss of sensibility to pain, is but a variety of this disease.

The determination of the treatment and prognosis for anæsthesia must, like that for hyperæsthesia, depend upon the disease in which it originated.

DERMATALGIA.

Synonyms.—Dermalgia — Neuralgia of the Skin — Rheumatism of the Skin — Nervenschmerz der Haut.

Dermatalgia is a nervous disease characterized by pain limited to the skin, with or without hyperæsthesia and anæsthesia of the part.

Symptoms.—Dermatalgia, or pain in the skin, is generally accompanied with a certain degree of sensitiveness of the surface. Occasionally, the sensitiveness that accompanies the pain may be succeeded by more or less anæsthesia of the part. The pain may be of a boring, shooting, pricking, or burning character, slight or severe, constant or intermittent. The sensitiveness of the surface may be so exalted as not to admit of contact of the person with the clothing or any other material, or even with the air, without inducing the severest suffering. Yet, although gentle manipulation, motion, and slight contact excite pain, hard pressure often affords relief. The skin, in the majority of cases, does not present any visible change, but occasionally some lesions appear on the affected part. Erythema, urticaria, and other eruptions have been noticed to develop during the course of the disease.

Dermatalgia is generally symptomatic, and occasionally, though rarely, idiopathic. It usually appears suddenly, affecting a small area, but it may involve the general surface. It occurs oftener in women than in men, and on hairy than on smooth parts of the skin. The subjective symptoms, being generally more severe at night than by day, may interfere with the patient's rest.

Diagnosis.—Dermatalgia is sometimes confounded with neuralgia of the nerve-trunks, or muscular rheumatism, but the pain in these affections is more deeply situated as well as more extensively distributed than in dermatalgia.

Etiology.—Rheumatism, anæmia, chlorosis, and functional and organic diseases of the nervous system are some of the well-known causes. It has been noticed also as the direct effect of cold.

Treatment.—It is the primary disease, if such can be detected, that should receive the principal treatment. Rheumatism should be sought for, and, if discovered, should be treated constitutionally. Hot or cold applications, especially of water, in a gum-bag or bladder, are often very serviceable. Ice used in the same manner frequently affords great relief. The simple vapor-bath may also serve well. Immediate relief can always be given hypodermically with one quarter of a grain of sulphate of morphine to the eightieth of a grain of sulphate of atropine. The use of this combination often gives relief for a considerable length of time. The application to the part of pure menthol in the solid form, or of a lotion made of it, is of much service and most grateful to the patient. The tincture of belladonna, the tincture of aconite-root, and chloroform, employed externally alone or combined, are often followed with beneficial result. The galvanic current moderately used has sometimes proved satisfactory. Sometimes the application of a blister to the surface will be found useful. The disease is subject to relapses, and may continue obstinate for some time.

PARÆSTHESIA.

SYNONYM.—Pruritus.

Paræsthesia, a form of perverted sensation of the skin, manifests itself by either an itching or a tingling, burning, creeping, or pricking sensation in the parts.

Symptoms.—It will be seen that the affection known as paræsthesia includes a number of abnormal sensations that are usually described and spoken of as pruritus, which literally means an itching, necessarily of the skin, as that is the only part through which we are cognizant of the sensation. The substitution of the term paræsthesia conveys an idea of the disease under consideration, while the use of the term pruritus refers merely to one, not necessarily to all of the symptoms, for others may be present. Paræsthesia is a distinct affection, not to be confounded with prurigo, or with any other of the affections with which abnormal sensations of the skin are associated. The first and only subjective symptom may be the sensation of either itching, pricking, or boring. In other cases any number of diverse sensations may be simultaneously experienced. Primary objective symptoms being absent, and the physician having to rely entirely upon the patient's description for a proper understanding of a case, this resort is always available only on the terms that the patient happens to be possessed of self-control sufficient to enable him to refrain from obtaining relief by rubbing or scratching the parts, thus often producing secondary alterations of the skin.

It is thus seen that secondary lesions may or may not be present, depending upon whether or not irritation has been set up by the effort of the sufferer to obtain relief by scratching, rubbing, punching, or pounding the integument. Abnormal sensations usually vary in accordance with the circumstance of what portion of the body is implicated, and with that of their exciting cause. In some instances there may be an itching, tingling, or pricking experienced, with an intense desire to scratch and tear the skin; in others, a boring or gnawing may constitute the peculiarity of the sensation. In some cases the sensation is as if produced by minute insects crawling on and through the integument, and so vivid that patients often insist that worms in the skin are trying to escape. Several times such sufferers have stated to me that the skin feels as if earth-worms were wriggling around in it. Again, the sensation is as if a fly or insect had suddenly alighted upon the skin, prompting the impulse to brush it away. On the other hand many patients have the sensation as if from flannel or from some rough or furry substance in contact with the body. In fact, the abnormal sensations experienced by these unfortunates are innumerable. Any case may present one or more of the symptoms enumerated, and the person, not being able to resist the intense desire to scratch, tear, rub, or pound the skin, may bring about marked secondary changes of the parts. The surfaces in such instances are usually erythematous, roughened, with here and there abrasions, lymph-papules and superficial linear wounds showing the track of the nails. This condition may be present to either a slight or marked degree, and often exists, especially when severe eczema or dermatitis is a complication from the secondary changes. The symptoms mentioned may be either intermittent or constant, intermittency being the usual condition, the paroxysms being more severe at night, after the patient has become warm in bed, than during the day.

Paræsthesia may occur at any period of life, but is more frequent in middle and advanced age. It may be either general or local. It generally attacks one portion of the body at a time, and may spread until the entire surface is involved. In some cases it appears upon certain parts and lingers until eradicated by treatment or through the removal of the exciting cause. Thus it may attack the scalp and face, in which event the forehead, cheeks, nose, and mouth are separately or all together invaded. In old persons it usually appears on the trunk or the extremities, and often on both regions at the same time. The localized form frequently occurs in the axillæ, around and on the genital organs, and the anus. The itching and other distressing sensations in the female, when attacked by it either in the inner portion of the limbs, the anus, the labia, vagina, or clitoris, the affection often attacking only a single part, and thence spreading until all are involved, are almost unbearable. The days and sleepless nights are passed with the most intense suffering until the patient is thoroughly exhausted and often unable to move around. In the male sex the penis, urethra, the scrotum, and the adjoining parts, especially the perinæum and anus, are often the seat of this disease, the annoyance being equally intolerable with that experienced by patients of the opposite sex. In both sexes, children and adults as well, the anus frequently becomes the seat of this disease. The itching, burning, smarting, or tingling sensation may be either around the orifice or within the rectum. It is often associated with an ulcer or an inflammation of the rectum, with hæmorrhoids and fistula. It sometimes follows exhausting discharges from the bowels in the course of the various forms of dyspepsia, and after many local diseases of these parts. The unbearable irritation that occurs may be constant, but is usually intermittent. Paræsthesia occurring in or around the anus, especially among those who have to appear frequently in public, is a most annoying and distressing affection. The desire to rub or scratch these parts when involved becomes often irresistible. Public speakers, lawyers, clergymen, singers, and even the judge on the bench, if affected, may be driven in the midst of their duties to retire and scratch or rub the parts until their sensibility is for a time deadened.

Diagnosis.—As many of the morbid sensations of paræsthesia are similar to those in various other cutaneous diseases, great care should be taken to distinguish them from the symptoms that arise from a distinctively different eruption. The history of the case, the absence of any eruption at the outset of the irritation, and sometimes the subsequent appearance of such secondary changes as excoriations, crusts, infiltrated and reddened integument with congested and torn follicles, are all sufficient evidence that the disease is paræsthesia. In the localized forms of paræsthesia, when eczema or dermatitis complicates the affection, it may be difficult to distinguish one from the other. In such cases the diagnosis must depend upon the history and the subjective symptoms described by the patient. Prurigo, a term that has been used by some physicians to express paræsthesia, is a distinct affection, having in common only the symptom of itching. Prurigo, as will be seen by the reference already made to it, is primarily a papular affection, and has a different course from the other, which circumstance alone should prevent its ever being confounded with paræsthesia. Pediculosis of the body, or of the axillary and pubic regions, may be confounded with paræsthesia. The secondary changes of hyperæmic skin with torn follicles, thickened crusts, due to excoriation with the nails, the itching, and other morbid sensations, are common to both affections. The history, the presence of minute hæmorrhagic specks, or what the late Tilbury Fox called "pathognomonic lesions," caused by the local withdrawal of the blood by the pediculi or lice, and lastly the presence of the parasite on the undercloth-ing, are conclusive means for diagnosing pediculosis of the body. If the eyes, beard, axillæ, chest, abdomen, pubic, genital, and anal regions, or in fact any part covered with hair be involved, it will be necessary in all cases, of either sex, to make a most careful examination of the parts before coming to a definite conclusion as to which one of the affections under discussion has appeared. In case the head be involved, the presence or absence of the parasite will set all doubt at rest as to which of the two it is. In reference to the involvement of the other hairy parts of the body mentioned, I would say that the presence of a parasite, the pubic louse, should always be the assumption until a most careful search has proved its incorrectness. If a darkish speck or specks can be detected adhering near the base of the hairs of the region attacked it will stamp the cause of the irritation, for the removal and examination of those spots will indubitably show that the symptoms have been due to the action of the pubic louse.

Pathology.—Paræsthesia is usually a functional disease of the nerves of sensation that are distributed in the skin. It may be associated with an organic change in the body, but, as a general rule, no structural change can be detected. It is mainly dependent upon an impairment of the nerve-force or upon some centric nervous disturbance.

Etiology.—Paræsthesia may occur at all seasons of the year and at any period of life, but it manifests itself more particularly in middle and advanced age. Atmospheric changes, notably in winter, cause it to appear in certain individuals. Organic and functional derangement of the nervous system, as well as debility, anæmia, excesses of all kinds, and physiological changes that occur at certain periods, may originate it. Cases of it are frequently encountered as the consequence of the use of certain drugs or food, and as the consequence of many visceral diseases. Gastro-intestinal derangement, especially constipation, diarrhœa, intestinal worms, and hæmorrhoids, are well-known promoters of it. It often accompanies or precedes hepatic and renal affections, especially jaundice, instances of its preceding or following which affections are reported by Graves, Flint, Legg, and others, as well as its similar relations to albuminuria and diabetes. Genito-urinary irritation, from disease of the organs concerned, has in both sexes been known to produce paræsthesia. In the male sex an enlarged prostate gland, irritation of the bladder from calculi or other cause, excessive venery, gonorrhœa, and condylomata are recognized causes. In the female sex it may appear from pregnancy, excesses, leucorrhœa, vulvitis, uterine polypi, boils, amennorrhæa, and dysmenorrhœa.

Treatment.—It is essential in all cases first to seek to detect the cause of the disorder, and treat the patient accordingly. If the cause can be recognized, special attention should at once be directed to meeting it by the proper treatment. Sometimes it is impossible to discover any exciting cause, and in that event the case should be treated upon general principles. Constitutional and local treatment are both required until all evidence of the irritation shall have disappeared. The secretions should be regulated, and in case of constipation an occasional blue pill, followed with a saline cathartic, will often be advantageous. In debility or anæmia, either cod-liver oil, mineral acids, iron, quinine, strychnine, phosphorus, arsenic, or the bitter tonics, are often indicated. In some cases, however, none of the preparations named are followed by good results, and often, owing to gastric and intestinal derangement, many of them are not well borne by the stomach. Debility or anæmia, an impoverished state of the blood, or lack of nutrition in the system, prominent causes of paræsthesia, should, after repeated failures of all the usual remedies, be treated by the hypodermic administration of cod-liver oil. Again and again have I, in the most obstinate cases, resorted to daily injections of a drachm or two of cod-liver oil into the subcutaneous tissue of the back, and this with the happiest results of a speedy cure. In the event of the affection depending upon any derangement of the intestinal tract, plenty of exercise, the avoidance of spirituous liquors, of tea, coffee, and all indigestible forms of food, and the proper medication for each particular case should be prescribed. Pepsin, lactopeptine, pancreatine, the acids, alkalies, the tinctures of nux vomica and ignatia are all useful drugs that can be selected from and employed with favorable results.

Diseases of the viscera, especially of the liver and kidneys, should be treated according to the appropriate remedy or remedies. Surely, relief from the irritation of the integument is not to be expected until the original disease has been modified or cured ! In the case of jaundice, Murchison recommends the use of bicarbonate of potassium to relieve the itching that accompanies it. Genito-urinary diseases in both sexes are to be treated by correcting the general health, and by paying attention to the special indication for each case. Pick and Simon recommend and report good results from the use of pilocarpine. If given by the mouth, one sixth to one quarter of a grain of the muriate of pilocarpine can be administered once or twice a day. Simon recommends likewise the sirup of jaborandi. The author has employed the latter and also the infusion of jaborandi, no reason for preference of either being apparent, the effect of neither being at all decided. The tincture of gelsemium, in fifteen-drop doses every half-hour until from one to two drachms are taken, has been recommended, but with results usually also negative. Carbolic acid and many other drugs have been employed with like experience.

Change of food, climate, and scene will, through their joint effect upon the system, sometimes cure obstinate and previously intractable cases. External treatment is of the greatest benefit, both to afford relief from the intolerable irritation and to combine with internal medication toward effecting a cure. Probably the most important of all the agents employed by me for both temporary and permanent relief are electricity, massage, and water, for their stimulating, sedative, and tonic effects. Inasmuch as these agencies have been known and used for a very long time, it is to be regretted that they have been and are applied to so slight an extent. I have been employing one or another of them for several years, often with the happiest result, in managing some of the most obstinate cases of paræsthesia. Electricity is, without doubt, the most valuable of the three agents mentioned. It influences both directly and indirectly, through the reflex action of the nerves of the part. Faradization and galvanization can both be used for local and systemic effect. If the patient is weak, nervous, and much prostrated, mild local faradization, with central galvanization, is often most effective. In cases attended with much alteration of the integument, especially with infiltration, the faradic current, given alone or alternated with local galvanism, will often stimulate the dormant absorbents to remove the exuded products, and have both a sedative and a tonic action upon the parts.

In regard to the frequency of application of electricity, it is obvious that the capacity of receiving the current must vary with the case. Some persons bear not only with ease, but with positive relief and pleasure (the operation alleviating the itching), either a mild or a strong current once every day or two, while other persons are not benefited by its administration more frequently than twice a week. Each case must therefore be carefully studied with the view to ascertaining individual idiosyncrasy, and thus the dosage be properly apportioned. The electric treatment, combined with proper internal medication, has in my hands ameliorated the condition of many to whom life itself under the horrible attendant sensations had become a burden, and has in very many instances effected a permanent cure after all other treatment had failed. Massage is the second most useful application in order of efficiency, and often acts like magic in arresting the irritation of the parts involved. Massage can be performed by pinching the skin, and at times the muscles, by tapping and beating, and by passive movement of the general and affected surface. I often order, with the view to secure both local and constitutional effects, the treatment to be applied to the general surface of the body as well as to the part immediately involved. This equalizes the circulation, removes the exuded products, nullifies through its sedative action all nervous irritation, and is most agreeable, often producing sleep after futile efforts with many hypnotics.

The third important agent in order of importance is water employed at various temperatures, used either alone or combined with some medicated substance. Some persons are benefited by hot or cold douche-baths, or by fomentations, and sometimes alternation of the two affords the most relief. The use of the various medicinal liquid baths (see page 66) often proves of service in allaying the irritation. Those of the greatest efficiency are the emollient alkaline, naphthol, alum, tannin, and the sulphuret of potassium. Again, the Turkish, the simple vapor, the electro-vapor, and the medicated-vapor baths of sulphur, mercury, tar, and of the balsams are beneficial. Numerous medicated substances claim attention from their anæsthetic or soothing action on the skin. One the most useful of them for affording temporary relief is menthol. The employment of one of the oily preparations, as for instance olive-oil, glycerin, glycerole of starch, either before or after a bath, and constantly applied to the parts, with or without a bandage, may agree with some cases. In other cases the various ointments, such, for instance, as that of alum, bismuth, lead, and the zinc oleates and the mercuric oleate ointment, in case of much alteration of the skin, may be indicated. The following prescriptions may sometimes be used with advantage :

℞	Extracti erythroxyli	ʒ ij.	
	Adipis	℥ j.	
℞	Naphthol	℈ j.	
	Extracti belladonnæ	ʒ ss.	
	Adipis	℥ j.	M.

Valuable for its sedative action.

℞	Hydrargyri ammon. chloridi	℈ j.	
	Olei anthemidis	gtt. v.	
	Pulveris marantæ	ʒ j.	
	Morphinæ acetatis	gr. iij.	
	Ungt. aquæ rosæ	℥ j.	M.

A useful preparation in paræsthesia of the genitalia and anus.

℞	Camphoræ,		
	Chloral hydratis	āā gr. xl.	
	Extracti arnicæ	ʒ ss.	
	Extracti opii	gr. xx.	
	Adipis	℥ j.	M.

A combination which can be employed with advantage, especially if there is much change on the skin.

℞	Acidi tannici	℈ j.	
	Extracti belladonnæ	ʒ ss.	
	Extracti opii	gr. x.	
	Ungt. aquæ rosæ	℥ j.	M.

An effective application to use in irritation of the perinæum and anus.

℞	Ungt. hydrargyri nitratis	ʒ iij.	
	Camphoræ	ʒ j.	
	Lanolin	℥ j.	M.

Good results have at times followed from this combination.

The use of impure carbonate of zinc, the bismuth and lead salts, or zinc oleate, dusted over the surface of the body after a bath, employed conjointly with oils or ointments, is often beneficial. Lotions sometimes suit individual cases. Thus black-wash, lime-water, alone or combined with glycerin, glycerin with essence of peppermint, or the fluid extract of erythroxylon or conium, either alone or mixed with water, are useful. Among other excellent applications may be named diluted acids, especially sulphurous acid, diluted alkalies, diluted alcohol, tincture of benzoin, the tarry preparations, infusions or decoctions of oak-bark, tobacco, aconite, poppy, belladonna, lead-water, and laudanum. The following are also useful : the corrosive chloride of mercury, three to five grains to the ounce of water ; sulphate of morphine, three to five grains to the ounce ; hydrate of chloral, thirty to sixty grains to the ounce ; sulphate or hyposulphite of sodium, a drachm to the ounce ; and acetate of lead, thirty to sixty grains to the ounce. In paræsthesia of the female genital organs, injections of hot water, simple or medicated, into the vagina, are often most effective in allaying the intolerable subjective symptoms. One of the simplest and best combinations in such cases is one half ounce each of powdered alum and borax to a quart of hot water, as an injection as well as for direct application to the external parts. The potassium chlorate, in from one half to one ounce to the same quantity of water, is sometimes equally effective. In the same way either one or the other of these last combinations serves admirably in paræsthesia of other portions of the body.

Prognosis.—Paræsthesia is an obstinate and often an unyielding affection. Great caution should be exercised in the prognosis, as much depends upon the exciting cause and the power of the physician to meet it. In very old persons, in senile alteration, or in organic disease, the affection is usually incurable. In a few instances met with, some of the forms of treatment just described merely allay the symptoms for a short time and must soon be replaced by others, and they in turn but briefly performing their intended function, and so be changed continually until the patience of both physician and sufferer is almost exhausted in the effort to secure relief. Perseverance and an occasional change of the various remedies used will, however, generally result in curing the most obstinate and distressing cases of the disease.

CLASS IX.

PARASITES.

(Parasitæ.)

ANIMAL.

SCABIES.

SYNONYMS.—Itch—Krätze—Gale.

SCABIES is a contagious animal parasitic disease of the skin, produced by the presence of the acarus scabiei, which gives rise to the appearance of cuniculi or burrows, papules, vesicles, pustules, excoriations, and crusts, or other primary or secondary lesions, and is attended with itching.

Symptoms.—The extent of the morbid effect which this animal parasite, acarus scabiei, will produce on and in the skin, is dependent upon the individual's condition, whether the health be good or bad, and upon whether or not the disease has been observed and treated in its early stage. I shall, in the first place, speak of the changes which this itch-mite gives rise to in both the early and the late period of contagion; and, secondly, to phases of the disease. At the time of contagion, at the moment when the female insect obtains lodgment upon the skin, it at once penetrates the horny layer of the epidermis, through which it burrows in a somewhat curved direction. While the female acarus thus forms a canal or cuniculus in which she lays her eggs to the number of twenty-four to fifty, the male wanders over the surface, or hides among the scales or crusts. In a short time the ova in the burrows are hatched, young mites come to the surface, become impregnated, and in their turn burrow, forming vesicles, papules, and pustules, which usually first appear on the hands, being limited to a small area, and which eventually extend to other regions. In the course of from two to three weeks after the young mites have been hatched out and in turn have at various points burrowed, setting up more or less irritation, the disease becomes fully developed. The irritation thus excited by the burrowing of the mites into the epidermis, and the consequent indulgence of the patient in scratching, cause the integument to become more or less covered with primary and secondary lesions similar to those observable in eczema.

In some persons the eruption is slight, the burrows, vesicles, pustules, and papules being distinct and seen without difficulty. In the majority of cases, however, the surface is the seat of many and variously sized vesicles, papules, and pustules, more or less torn, with here and there crusts, hæmorrhagic spots, excoriations, and fissures from scratching, the parts being slightly or markedly inflamed. Typical and well-developed cases usually present such an appearance. All lesions cited may not, however, be present at the same time. Unless checked, the affection becomes worse and worse, and especially pronounced in the pigmentation of the surface, until it involves not only its regions of predilection, but gradually encroaches upon and covers the whole skin. The secondary changes frequently become so prominent as entirely to mask the original disease.

Now that the general symptoms of the disease have been considered, the next reference will be to the morbid appearances produced by the presence of the parasite. These, of course, vary according to the condition of the patient when attacked, the length of time since the commencement of the attack, and the locality of the ravages of the mite. The female insect, on entering the skin, usually produces through that irritant action a vesicle, bleb, or pustule of greater or lesser size, the beginning of the furrow. She gradually burrows beneath the horny layer of the epidermis, forming a slight canal that is approximately straight or curved or circular in form, and varies from part of a line to four or five in length. This canal is either speckled, uniform white, or dark in color, depending upon the habits and occupation of the patient, and the foreign material that has in consequence of these come into contact with the parts. The female, having burrowed in such regions as the hands, wrist, extensor surfaces of the limbs, or other parts, and laid her eggs, secretes herself at the end of the canal in a bed which may be recognized as a small white speck. The mechanical irritation to the nerves of the skin set up by the hatched mites soon gives rise to itching, which leads to scratching with all its evil consequences. The itching is either mild or severe, most commonly exasperating, and persons rub, scratch, and tear the integument, which then becomes the seat of abraded vesicles, papules, and pustules. Not only is the epidermis thus lacerated, but often the corium beneath it also, serum and blood escaping and forming into crusts which, mingling with wheals, papules, and excoriations, give the characteristic appearance of the ordinary developed case of scabies. In long-standing cases, or in those of persons out of health, the skin becomes markedly altered, its infiltration and pigmentation often being most conspicuous.

Scabies has, as intimated, a predilection for certain regions of the body, portions of which, too, are more scratched than others, as, for example, the anterior portions, especially those below the breasts. The parts most frequently invaded are the hands, the palms, the backs and sides of the fingers, particularly the clefts between them, the wrists, the extensor surfaces of the limbs, the folds of the axillæ, the buttocks, and the toes, the dorsal and plantar surfaces of the feet, and particularly just above the internal malleolus. In the male sex, owing to the necessity of the hands being frequently brought into contact with the penis, the contagion is frequently spread to this organ and the scrotum. In the female sex the nipples are the part usually invaded. The scalp, face, breasts, abdomen, and extremities of infants may receive contagion from the nurse, by whom the contagion is generally spread through touching these parts. While it is true that the acarus scabiei does by preference seek for its attacks those regions that I have mentioned, it is also true that direction is imparted to its promptings by its being presented with a congenial habitat in the form of an irritated surface or of one that has been subjected to tight bandaging.

The fact that the parasite is sensitive to cold and especially active under the influence of heat, accounts for the other fact that the face is especially exempt from the disease, that the exposed parts are comparatively comfortable during the day, but that, when covered up at night, the itching becomes more intense than usual.

Diagnosis.—The morbid changes just described, especially that represented by the burrow, are all-sufficient for making the diagnosis of scabies. The burrows should be sought for the moment the disease is supposed to be parasitic. It will in the early stages of the disease be found almost impossible to detect canals, for the parasite has not then quite formed them, and after the disease is fully established the scratching may have obscured or destroyed the evidence sought. Occasionally a skilled eye and dexterous hand may with a good lens be able to observe upon the sides of the patient's fingers either the burrows or their remains. During such an examination the parasite may be caught by inserting a fine needle into the white speck at the end of the burrow. Remember that the insect is not in the vesicle, but in the locality named. Absence of burrows and parasites, or rather what is implied, failure of the physician to detect them, should by no means at once preclude the supposition that the disease may really be acarus scabiei. Other evidence must be sifted to render the diagnosis conclusive—the history of contagion, the appearance of the secondary eruption, its distribution to the favorite habitat of the parasite, such as the fingers, the inner part of the wrist, the penis, the axillary folds, the abdomen, and the buttocks, particularly these parts of those persons who are sedentary in occupation. Notwithstanding the employment of these capital indices as means toward forming a diagnosis, there are two diseases especially, eczema and pediculosis, which closely resemble it in symptoms, and with which in consequence it is liable to be confounded. And, to complicate matters, it must not be forgotten that scabies and eczema sometimes coexist. There are, however, certain peculiarities of the eruption in pediculosis that will generally enable one to distinguish it from scabies, especially if they happen to be at the same time present upon the same individual, and the peculiarity of the eruption in scabies should enable the physician to make the differential diagnosis between it and eczema.

In scabies the vesicles are similar in their form to those of eczema, but in their sparse and isolated development, and their situation upon the favorite region of scabies, they differ very much from the many vesicles which are in eczema grouped. Again, while the papules in scabies are not distinctively different, to all appearance, from those of eczema, yet they present certain conditions peculiar to themselves, such as being isolated and torn from scratching, and as occurring on the anterior parts of the trunk and the flexor surfaces of the limbs. What has been stated concerning the vesicular and papular eruptions observed in scabies would also be true of the pustules if they should appear in the course of this disease. The pustules are in no way peculiar, but their appearance on certain regions, as, for instance, the fingers, toes, or buttocks, points very strongly to scabies.

Pathology.—In connection with the discussion of the lesions produced by the acarus scabiei, the anatomy and natural history of the parasite may be briefly described. The acarus scabiei, sarcoptes scabiei, or sarcoptes hominis, commonly called the itch-mite, is a very minute insect belonging to the class Arachnoidea, order Acarina, and family Acaridæ. It is the female acarus only which, by her burrowing in the epidermis, occasions the lesions on the skin, the male remaining upon its surface. The female, which is much larger than the male, can be observed beneath the epidermis in her resting-place as a yellowish or whitish speck, and can at times be extracted with the point of a needle. The female insect when thus exposed is found to be barely visible to the naked eye, but is fully recognizable under the microscope as a minute insect from one fifth to one sixth of a line in length, and from one sixth to

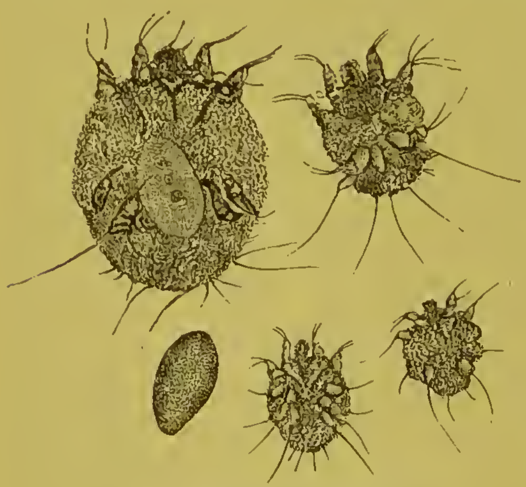
FIG. 20.—Acarus scabiei and egg.

one eighth of a line in breadth, with an oval, tortoise shape, convex on the dorsal and flat on the ventral surface of the body, the sides indented and the ventral surface traversed by tortuous lines. (See Fig. 20.)

The back of the parasite is covered with short spines and long, spike-shaped processes, directed backward. The head, which is small and oval, is without eyes and is furnished with palpi or feelers and mandibles or cutting jaws. The body is furnished with eight legs, the four in front near the head being short, thick, conical, pointed, and having cup-shaped suckers and hairs, and the four behind having attached to them only long hairs. On each side of the body two bristles appear, and posteriorly, four. Muscles, stomach, intestines, ovaries, and two ventral outlets have been discovered, but as yet the existence of neither circulatory nor nervous system has been proved.

The male acarus is about half the size of the female. In the male the posterior legs are supplied with suckers instead of with the hairs present in the opposite sex. The genital organs are well developed. It is stated that the male usually dies after copulation, in from six to eight days' time. The young acarus may be known by having but two posterior legs. The female, as said before, having made her burrow in the skin, proceeds to deposit in it from twenty to fifty eggs, and survives the operation only from one to two months. Occasionally she makes lodgment beneath the epidermis without making a regular burrow. The eggs are in form ovoid and about one twelfth of a line in diameter. If a burrow be carefully cut out of the integument with either a knife or scissors and placed beneath the microscope, the parasite, eggs, and embryos will generally be seen, and mingled with them some black specks—the fæces. The young acarus hatches out in about a week, and makes its exit through the opening through which the parents came, or else by means of a rupture of the side of the burrow. It again buries itself in the skin and undergoes three changes before reaching full development.

The lesions in and on the skin are produced by the disease through the instrumentality of the burrowing of the insect, and by the mechanically excited inflammation of the skin through scratching. With the exception of the burrows, the lesions produced are similar to those seen in the various forms of eczema. The extent of alteration of the skin that follows will depend upon the general physical condition of the individual affected, upon whether or not he is naturally possessed of a sensitive skin, and upon the duration of the disease, and the amount of scratching that has been indulged in by the sufferer.

Etiology.—The cause of scabies has already been stated to be due to the ravages of the itch-mite, but it has also been stated that the virulence of the eruption is produced by the patient's scratching. The disease is, as has been said, contagious. It attacks all classes, all ages, and both sexes. It is, however, more common among men than among women, on account of their being, more than women, accustomed to sleep together. It affects the healthy as well as the unhealthy, but thrives better, however, upon the skin of the latter class. Itch is without doubt contracted most frequently through persons sleeping together. It may be transferred from one person to another by shaking hands, or by reclining upon a bed or couch, or through gloves, clothes, or other articles of apparel worn by one person and then by another. It is hardly likely, however, that it is generally communicated by these means, for in college and hospital clinics both students and I have, in making examinations, handled scabies patients for some time without in any instance developing the disease. In one instance I attempted, at his own wish, to inoculate a member of the class with the virus, and had to repeat the experiment several times before it was successfully accomplished. Yet, as may be remembered, Napoleon once acquired itch from having handled the rammer of a cannon. In order to develop the disease, individuals representing the two sexes of the insect, or else an impregnated female, must obtain lodgment on the skin. It is no doubt frequently transferred, as Hebra has observed, through the scales and crusts in which the parasites are located, or through the agency of the finger-nails that have torn them from the skin in the action of scratching. Uncleanliness, filth, and crowding together of many persons in tenement-houses, on ships, and in camp-life conduce to the propagation of scabies. It is particularly active among emigrants and among soldiers in large armies, under those conditions where men are brought into close contact with one another and compelled to neglect the ordinary hygienic laws. During the late civil war in the United States it was propagated to a great extent in both the Northern and Southern armies, from the herding together of many persons, and from uncleanliness. It was at this time that I witnessed its effect on very many persons, in the keen suffering that it caused to those afflicted with it. In a large rural town in which I then resided, through which both armies passed, scabies became almost epidemic. There was hardly a family in the place exempt from its ravages; but since that time scabies has entirely disappeared there. It is at present in the United States a rare affection. It is more commonly than elsewhere seen in our larger seaboard cities, communicated generally by newly arriving immigrants. At the clinics of the Medico-Chirurgical Hospital of Philadelphia cases are seldom seen, and in the dispensary service of the Philadelphia Hospital for Skin Diseases only seven out of fourteen hundred and forty-six cases of skin-disease were observed. While scabies is, as already remarked, comparatively rare at present in this country, it is more common in the East than in the West, and is prevalent in Sweden, Norway, Austria, Germany, and France.

Treatment.—The treatment of scabies is usually simple, and can be accomplished solely by external means. The object of the treatment is the employment of such agents as possess the power of not only destroying the itch-mites and their eggs, but of relieving the secondary eruption that may be present. For this purpose any one or a combination of many well-known remedies can be used ; but, before making a selection among them, it is necessary to consider which would be most applicable to the case under consideration. In order to choose intelligently, therefore, the physician should especially consider whether the subject be a child or an adult, the sex and age of the patient, and the condition of the skin, whether it is naturally sensitive, or hardened and coarse. Again, he should be mindful of the duration of the disease, and of the amount and extent of the secondary changes that have occurred. Lastly, and above all, the position in life should be considered, and whether the treatment is to be for private or for hospital cases. Naphthol is a remedy that seems to meet all the indications detailed. It is applicable in varying strength in the form of an ointment for children as well as adults, whether the skin be sensitive or hardened. It is efficient and valuable, not only from the fact of its ability to kill the itch-mite, but also from its being odorless and beneficial to the inflamed skin. It may be prepared for application as follows :

℞	Naphthol	ʒ ss.
	Adipis recentis	℥ j.
M.	Ft. ung.	

Kaposi called the attention of the profession to the utility of the following prescription for scabies :

℞	Naphthol	15 parts
	Pulv. cretæ alba	10 "
	Sapo virid	50 "
	Axung	100 "
M.	Ft. ung.	

The superior advantages of naphthol ointment in the treatment of scabies have been shown by Hardy and Guerin,[*] of Paris, and many other observers. Chlorinated oil[†] has also been for the past few years in my experience a most serviceable remedy in scabies. The well-known effects of chlorine lotion, a very old remedy, caused me to experiment with olive-oil saturated with dry chlorine gas, with even better results than with the former preparations. What I have termed "chlorinated oil" is ordinary olive-oil saturated with chlorine. It contains many volumes of chlorine, and, as a substitutive compound, the chlorine having lost its identity and odor, makes an unobjectionable remedy that acts without either irritation or inconvenience to the patient or interruption to his avocation. Styrax, a semi-fluid resin or balsam, is also a valuable remedy on account of its pleasant odor and its cleanly and unirritating effect on the skin. McCall Anderson, who has had a most extensive experience in treating scabies, recommends, in preference to all other remedies, styrax in the form of the following ointment: Styrax, one ounce; lard, two ounces; melt and strain. Sulphur was formerly the remedy that was mainly relied upon for the treatment of scabies, used in from one half a drachm to two or more drachms to the ounce of lard. While it is, no doubt, a most effective remedy employed alone or in combination with other agents, yet its pungent, penetrating, and unpleasant odor makes it very objectionable for applications in private practice, especially among the better classes.

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[*] Thèse de Paris, 1882.

[†] *Loc cit.*

I esteem sulphur a remedy of much value in dispensary and hospital practice, and often in long-standing cases that have resisted its application in the form of an ointment I have obtained additional good effects by administering an occasional sulphur-vapor bath. Balsam of Peru, sapo viridis, tar in its various forms, carbolic acid, potassium carbonate, the mercurials, staphisagria, lime, the essential oils, and a host of other remedies have from time to time been recommended either alone or combined, with or without sulphur. The great objection to the employment of most of the agents named is their unpleasant odor, and frequently their irritant action. In the event that the skin will bear it, the following ointment of Bourguignon will be found useful:

℞	Olei lavand.,	
	Olei menth.,	
	Olei carophyll.,	
	Olei cinnamomi	āā ℈j.
	Gum tragacanth	ʒj.
	Potassæ carbonatis	℥j.
	Flor. sulphur	℥iij.
	Glycerini	℥vj.
M.	Ft. ungt.	

The following ointment can also be recommended:

℞	Sulphuris sublimati	ʒj.
	Olei cadini	ʒj.
	Balsam Peruviani	ʒj.
	Adipis	℥j.
M.	Ft. ungt.	

Vleminck's solution and Helmerick's ointment are both valuable, providing there is no objection to them on account of their odor, and that they are not too strong applications for the particular skin. The first-named preparation is made as follows:

℞	Sulphuris sublimati	℥j.
	Calcis	℥ss.
	Aquæ	℥x.
	Coque ad ℥vj, deinde filtra.	

After the use of the bath, two applications of this preparation will, it is said, cure the itch. The ointment is prepared in the following manner:

℞	Flor. sulphur	ʒ ij.
	Potassii subcarbon	ʒ j.
	Ungt. simplex	℥ j. M.

Hardy and others in France employed at one period a rapid method of treatment, by rubbing the patient for half an hour with sapo viridis, then placing him in a warm bath in which he remained another half-hour, and then rubbing the parasiticide well into the affected part, when the disease was cured. Wilkinson's ointment, the formula of which, as modified by Hebra, is often more suitable to employ than the original, is as follows:

℞	Flor. sulphuris,	
	Ol. cadini	āā ℥ vj.
	Sapo viridis,	
	Adipis	āā Oj.
	Cretæ	℥ iv.
M.	Ft. ung.	

Four applications of this ointment are made within forty-eight hours, after which the patient lies between woollen blankets or wears woollen clothing, and at the end of a week the treatment is concluded by a bath. The application, while effective, is tedious, painful, and more adapted to hospital than to private practice. The application of one or another of the remedies or combinations described should usually, unless contra-indicated, be preceded by a hot bath, with soap, after which the preparation to be used should be well rubbed into the part twice a day and allowed to remain for at least three days. At the end of this time another bath should be taken, and the skin should be critically examined to ascertain if the itch-mites have been destroyed. The parasiticide should, however, be continued, notwithstanding that the irritation may have lessened, until all evidence of the presence of the itch-mite has disappeared. The irritation may, even though the insect has been destroyed, continue from the inflamed skin. The disease, it should be noted, may be overtreated, and the skin so irritated by the remedies employed to destroy the parasite as to demand the use of the soothing or astringent remedies described in the chapter on eczema.

Prognosis.—Scabies is a curable disease in from one to two weeks' time. If the treatment is not properly carried out or the disease has existed for some time, or is complicated with severe secondary lesions, the restoration of the skin to its natural condition may be long and tedious. A rapid cure in private practice will depend upon a hearty co-operation at all times upon the part of the patient.

PEDICULOSIS.

SYNONYMS.—Phtheiriasis—Lousiness—Läusesucht—Phthiriase.

Pediculosis is a contagious disease caused by animal parasites called pediculi, or lice, which attack the skin, producing both primary and secondary lesions.

Symptoms.—The parasite known as the louse infesting the human body belongs to the class Insecta, order Hemiptera, and family Pediculidæ. It is a wingless insect of which there are three species, the pediculus capitis, pediculus corporis, and pediculus pubis, infesting respectively the head, the body, and the pubes. These three species of lice cause, in attacking the body, a slight or a great annoyance, sometimes entailing great suffering. The various symptoms which they originate may be best described under each of the species just named.

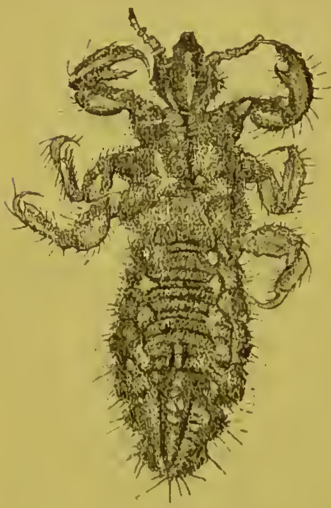

FIG. 21 (Photo-micrograph).—Pediculus capitis.

PEDICULUS CAPITIS.—The head-louse is found chiefly upon the scalp, and but rarely upon other regions of the body. It measures in length about two millimetres, and in breadth one millimetre, the female being larger than the male. Its color is generally grayish, but, as Geber remarks, it may change its tint with that of the skin of its host, being on the Esquimaux white, on the negro black, and on the Chinese yellowish-brown. In shape it is elliptical, and consists of a head, thorax, and abdomen. (See Fig. 21.)

The head of this species of louse is triangular or acorn-like in form, and is furnished with a pair of five-jointed antennæ and a pair of large, black, conspicuous eyes. The thorax, which is broad, has projecting from its sides six hairy legs furnished with stout claws. The abdomen, which includes more than half the length of the insect, is divided on each side into seven well-defined segments. In the male there protrudes from the back a large wedge-shaped penis with testes. The female possesses ovaries, the oviducts of which communicate with the vagina, which terminates upon the ventral surface. The female deposits in the course of a week about sixty eggs, or nits, which are white and elliptical in form. They are usually glued to the lower part of the hairs or along their shafts, a congeries of them sometimes being fastened to a single hair. In the course of from three to six days the young are hatched out, and are capable of reproduction in from eighteen to twenty days. Lice may occur in small or large numbers, depending upon the duration of the disease and the attention it has received.

Pediculi capitis may be observed more particularly in the occipital region of the head. They are generally to be found on the heads of uncleanly children, especially of those who are poorly nourished, and are often thus spread through schools. They are also met with in adults, particularly among those who have long and thick hair, in which they find a most acceptable habitat. The parasites excite by their attack upon the scalp a greater or less amount of irritation, which causes itching and scratching, accompanied with wounding of the parts, an escape of serum, and of bloody or purulent fluid, which together dry into crusts and mat the hairs. The itching may become almost intolerable, and the sufferer become so disturbed in both mind and body as to be affected in general health. When pediculi are present, of course the eggs or nits are to be found. They have the appearance of scales of seborrhœa upon the hairs, in recent cases usually near their roots, and in old cases near the extremities of the hairs. The ravages of lice depend upon the state of the patient's health and that of the scalp, being generally very severe in the neglected, the poorly nourished, and in those persons who are out of health. An eczema of the parts may take place, especially in those predisposed to it, and may extend beyond the scalp forward to the forehead or back to the neck. The inflammatory action may at times be so severe as to occasion the adjoining lymphatic glands to become swollen and tender. In neglected and long-standing cases, the head, with its dirty, matted, twisted, and glued-together hairs, filled with decomposed pus, crusts, lice, and nits, presents a most disgusting spectacle, and exhales a most offensive odor.

PEDICULUS CORPORIS, or body-louse, pediculus vestimenti, or clothes-louse, is larger than the head-louse, but otherwise resembles it. (See Fig. 22.) It is about two millimetres long and one millimetre broad, the females being larger and more numerous than the males. The color of the parasite when not filled with blood is of a dirty white, grayish, or yellowish tint. In shape the female is elliptical; the head is acorn-like in form, with conspicuous eyes, and is furnished with two hairy, five-jointed antennæ. The thorax is square, and plainly separated from the abdomen, and is provided on each side with three jointed, long, hairy legs with strong claws. In the female the abdomen is broader than in the case of the male, the sides being also more deeply serrated than in the male, and terminating in a triangular notch. The abdominal sections in the two sexes are less distinctive than in the case of the head-louse. The penis in the male is large and wedge-shaped, and projects from the dorsal surface of the middle of the abdomen. The domicile of the body-

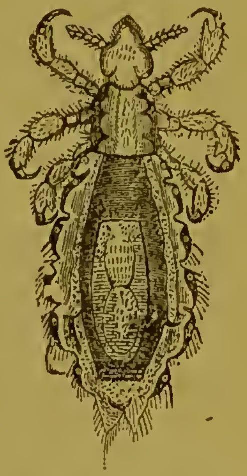

FIG. 22 (Photo-micrograph).—Pediculus corporis.

louse is the clothing covering the body, especially the seams and folds of the undergarments. It lives in the clothing, and frequents the integument only to obtain nourishment. In bad or neglected cases in which the lice are numerous, they may be seen drawing blood or wandering over the surface. The female lays in the clothing about seventy eggs which mature in from four to eight days, and the progeny are capable of reproduction in from sixteen to eighteen days. Sometimes, by reason of the clothes having been changed, the only evidence of the disease may be the characteristic lesions which the lice make upon the skin. The peculiar lesions which they make are produced by the action of their haustella or suckers inserted in the follicles of the skin, developing hæmorrhagic spots. The minute quantity of blood represented by these spots escapes from the follicle after the parasite has withdrawn its sucker, and the spot remains as the primary and characteristic lesion, by which alone the disease may often be detected without searching for the parasite. The parasites cause both by their movements and their attack upon the skin more or less unpleasant irritation. A burning, creeping, stinging, and unbearably itching sensation sets in, and the sufferer, seeking relief, indulges in scratching that may lead to the development of excoriations, wheals, papules, pustules, crusts, pigmentation, and thickening of the skin. A striking picture of multiform lesions is thus often presented by patients attacked by the body-louse. The secondary lesions may be especially varied, the scratch-marks being either short or long, superficial or deep; the excoriations, crusts, wheals, papules, pustules, and abscesses, of all sizes and forms. These lesions may likewise vary according to the duration of the disease and the condition of the patient's health. In some persons afflicted with the disease for a long time, more particularly in cases exacerbated by scratching, a brownish or blackish pigmentation results, and occasionally some thickening of the skin. Pediculosis corporis occurs most frequently in old persons, but it may also be met with in the young. The affection is very common in all countries among the uncleanly. The seat of the disease is chiefly about the neck, shoulders, clavicles, chest, back, and abdomen, but it often spreads over the whole body.

PEDICULOSIS PUBIS, or phthirius pubis, phthirius inguinalis, morpio, or the crab-louse, usually attacks the pubic or inguinal regions, although it also attacks the eyebrows and eyelashes, the beard, the mons veneris, the anus, the axillæ, the sternal region, the thighs and abdomen, the scrotum, or, except the head, any part of the body supplied with hair. (See Fig. 23.) The crab-louse is smaller than the other species, the male measuring only one millimetre in length and six tenths of a millimetre in breadth, and, as well as in the other species, being smaller than the female. Its body is short, broad, and flat, and upon it is placed an oval-shaped head provided with two long five-jointed antennæ, and having a pair of small, hardly discernible eyes. The thorax and abdomen are united as one, and from the lateral part of the former project two pairs of six-jointed hairy legs furnished with claws, the first pair being relatively delicate and weak. The abdomen is heart-shaped, its margin slightly indented, and provided with eight short, conical feet that terminate in stout hairs. In color the insects are yellowish gray and they are somewhat transparent. They are, on account of their inactivity and transparency, very hard to detect in their nidus. They are usually found with their heads well buried in the orifices of the follicles of the skin, with claws and bristles clinging closely to the hairs. Sometimes they are discovered crawling about the hairs or in close contact with the skin. Their ova are smaller than those of the head-louse, but are similar in color and firmly attached to the hairs, occasionally appearing like small pearls glued to the hairs, and are sometimes observed on the eyelashes. The excrement of the parasite may also be seen on the skin about the hairs, recognizable as minute, reddish particles. They are more common at maturity than during adolescence. They are communicated frequently through sexual intercourse, and spread to other hairy parts of the body from the pubes. They may be otherwise communicated, by clothing or by bedding, and are thus sometimes transmitted to children. The amount of irritation or inflammation that they may occasion through scratching varies greatly, being severe in some persons and slight or hardly perceptible in others.

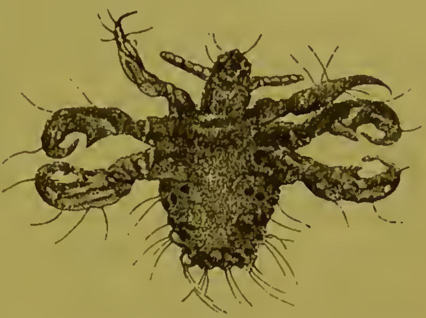

FIG. 23 (Photo-micrograph).—Pediculus pubis.

Diagnosis.—The circumstance of intense itching without any distinct eruption should always raise suspicion of the presence of parasites and prompt search for them. If pediculi be present, they are readily detected, particularly if they are numerous. Sometimes, when only a few parasites are present, it is possible to overlook them unless the examination be most critical. If after persistent search no trace of parasites be found, it may be concluded that even if once present they are removed or destroyed. Yet, notwithstanding this conclusive test, cases do occasionally occur where persons are so imbued with pediculiphobia that, although free from the parasites, they still imagine them present. The diagnoses of the several varieties of the disease may be made as follows:

PEDICULOSIS CAPITIS.—This disease is almost always detected by the presence of the parasites or of their nits. These are generally found at the top and back of the head, about the occipital region, together with more or less secondary changes produced by the animals. They often thus set up an eczema of the scalp that masks the original ailment, but careful search for and detection of the lice or their nits may settle the primary cause of the disease. Occasionally it happens that the eczematous condition of the scalp has furnished a breeding-place for the pediculi. If the two conditions coexist, it is impossible at once to conclude which is the primary affection. The history, course, and the fact that pediculi frequently cause eczema, especially in the case of persons out of health, will usually serve to indicate which is the primary disease.

Pediculosis Corporis.—Pediculi of the body are often overlooked if no parasites are discovered upon the skin. They are rarely found by examination of the skin, but should be searched for in the seams and folds of the underclothing. The existence of the minute hæmorrhagic spots, with blood-crusts and excoriations made by the instrumentality of the finger-nails, especially around the shoulders, the clavicular region and the back, are in most instances sufficient for a diagnosis. The differential diagnosis between pediculosis corporis and eczema, prurigo, paræsthesia, and scabies, is indicated in the description of those affections.

Pediculosis Pubis.—Itching around the pubes, scrotum, mons veneris, anus, axillæ, and other hairy regions, except the scalp, should arouse suspicion and lead to a most careful examination of the parts. The detection of dark specks close to the hairs as they issue from the follicles, with sometimes small whitish or yellowish specks (nits), also in close contact with the hairs, should establish the diagnosis. Pediculosis pubis may be mistaken for eczema or paræsthesia. The characteristic difference between them is pointed out under the head of the description of the latter disease.

Etiology.—Pediculosis is caused by the parasites just described. They may attack any person in any condition of life. They are more likely, however, to increase and multiply and occasion marked primary and secondary lesions on those surrounded by bad hygienic influences, who live in foul air, drink impure water, do not bathe, are poorly nourished or in bad health. Pediculi, according to the most recent investigations, do not, as was at one time supposed, obtain their food with a mouth furnished with mandibles, but with a haustellum or sucker. This sucking apparatus is inserted in the follicle of the skin, through which the blood is drawn, leaving at the opening of the follicle a minute quantity that remains as the hæmorrhagic spot previously described. It is the irritation set up by this act that leads to all the subsequent secondary changes.

Treatment.—It is necessary, in order to cure pediculosis, first to destroy the parasites and their ova; and, secondly, to remove all the secondary changes which these have caused in the skin. Among the many remedies that may be employed for the former purpose are naphthol, the mercurials, tobacco, cocculus Indicus, staphisagria, sabadilla, pyrethrum, carbolic acid, and sulphur. These may be used either as powders, lotions, and ointments, and some even in the form of soaps. It is essential to add, in this connection, that in employing any remedial agent whatsoever, the greatest personal cleanliness should be adopted or enforced. The debilitated and badly nourished, of course, need good food and tonics.

PEDICULOSIS CAPITIS.—Naphthol and corrosive sublimate are most useful in destroying the parasites. The most ready means of employing these agents is by incorporating them with soap. Naphthol or corrosive-sublimate soda-soap, used with water once or twice a day, is the most cleanly mode of removing pediculi. These preparations are, pharmaceutically, not only elegant, but they aid in removing the crusts and other extraneous matter which may be on the scalp. The same drugs may also be used combined with potash soap, if the latter do not prove too severe for the integument. Lotions and ointments of either naphthol or corrosive sublimate may likewise be used, but they are often objectionable on account of irritating the parts or matting the hairs. It is particularly for the last reason that, in treating pediculi of any hairy part of the body, lotions and oils are preferable to ointments. Infusions or tinctures of tobacco or cocculus Indicus may be used with advantage. The nits, should any remain, may be destroyed by solutions of soda or borax. Vinegar, dilute acetic acid, and alcohol also serve well the same purpose. It is unnecessary to cut the hair either of children or adults, providing that cleanliness and any one of the remedies just named are persevered in until the parasites and their nits are thoroughly destroyed. Fine-tooth combs, which are much resorted to for removing the nits and crusts, should always be employed, if at all, with the greatest care. They are too often used carelessly, and excite inflammation of the scalp. If it be decided to employ an ointment, white precipitate, five to thirty grains to the ounce of fatty matter, or sabadilla or staphisagria-ointment, can be applied with benefit. Crude petroleum, or its refined preparation, kerosene, is also an efficient remedy for destroying pediculi. It may be rendered less inflammable and less disagreeable in odor by mixing it with olive-oil or balsam of Peru. Its unpleasant odor is always perceptible, no matter with what the oil is combined. On account of its offensive odor and uncleanliness, I have abandoned its use, and now confine myself almost entirely to either naphthol or corrosive-sublimate soap. If in the course of pediculosis eczema appears, it is to be treated in the manner referred to in the description of that disease.

PEDICULOSIS CORPORIS.—As pediculi and their ova harbor in the clothes and not on the body, it is necessary, as part of the procedure in treating an attack of the disease under consideration, to bake, boil, burn, or otherwise destroy the clothing that has been worn by the patient, if one would make perfectly sure of the extermination of the parasites. The underclothing should be continually subjected to examination, and be frequently changed. If this course be not pursued, it will be impossible to eradicate the parasites. Sometimes it may be impossible at once either to sacrifice the clothing or to subject it to sanitary treatment, and in this event washing the skin with naphthol or corrosive-sublimate soap, or applying to it an ointment of thirty to sixty grains to the ounce of naphthol, white precipitate, or staphisagria, will keep the parasites from the person. The secondary effects of the attack of pediculi may be relieved by either weak mercurial or naphthol ointment, an alkaline or emollient bath, or a carbolized lotion of either oil or glycerine applied to the parts.

PEDICULOSIS PUBIS.—After the presence of crab-lice has been recognized, they can be destroyed by any of the soaps, lotions, or ointments already suggested. Eczema, resulting from the irritant action set up by the parasite, is to be treated according to the conditions indicated.

Prognosis.—The disease, if properly managed, has but a short duration.

PEDICULI OF THE LOWER ANIMALS.—The lice peculiar to the lower animals may transfer themselves to the human body, occasioning sometimes slight, sometimes severe irritation. Goldsmith reported the case of a woman who experienced intense itching, and after excessive sweating had a number of pigeon- or hen-lice come from the sweat-pores. Cleanliness and the use of naphthol soap, or a solution or ointment of naphthol or corrosive sublimate, will effectually destroy these lice.

CIMEX LECTULARIUS, ACANTHIA LECTULARIA.

The bed-bug, a wingless insect, provided with a stinging and sucking apparatus, obtains from man its ordinary sustenance, with which, however, it can dispense for long periods. It is brownish-red in color and on being crushed it emits a most rank and offensive odor. Its habitat is in beds, bed-clothing, in wood, especially in the cracks of floors, walls, behind wall-paper, and in old furniture. It tenants in large numbers old and neglected rooms and houses, especially those of people in the lower walks of life. Its bite makes a hæmorrhagic lesion around which is produced an urticarial wheal. The skin in some persons being very sensitive, particularly in children, the effect of the bite of the insect is at once apparent, through the sensation of a pricking, itching, and burning feeling which stimulates scratching, whence, through the combined effects of the poison and abraded skin, secondary changes arise. There are, however, persons whose skin is in no wise irritated by the bite, the sole effect of which is the hæmorrhagic lesion upon the part attacked. The cause of the disease having been ascertained, the wheals and other secondary changes can be at once relieved by applying to them soothing lotions or ointments. Four ounces of camphor-water, half a drachm of powdered borax, a solution of corrosive sublimate, two to four grains to the ounce ; a drachm of boracic acid, or half a drachm of carbolic acid to the pint of water, are all effective applications. The benzoated oxide of zinc ointment, combined with either calomel, salicylic, or boracic acid, is likewise useful. The best agents to use for eradicating the insect from beds, floors, walls, and other places in which they seek refuge, is corrosive sublimate or naphthol, one or two drachms of either to a pint of water. All substances in which they are suspected of being should be washed thoroughly with one or another of the above-mentioned lotions every few days until all signs of the insect disappear.

PULEX IRRITANS, OR FLEA OF MAN.

This minute parasite, brownish-red in color, is very common, especially in warm climates. It seeks the skin of man for its food and by its bites sometimes gives rise to very great annoyance. In piercing the skin the insect injects into it an irritating fluid, producing a small hæmorrhagic point surrounded by an erythematous areola, characteristic of the flea-bite. A certain amount of irritation, with itching and the formation of wheals, may result. Flea-bites are sometimes so numerous and venomous as to simulate morbilli and scarlatina. The rapid subsidence of the hyperæmic areola, together with the detection of the parasite, is sufficient to establish the diagnosis as that of simple flea-bites. They can generally be relieved by applications of alkaline lotions or solutions of naphthol or corrosive sublimate.

PULEX PENETRANS.

The sand-flea, known also as the chigre and jigger, is egg-shaped, brownish-red in color, and only half the size of the human flea. It is found in tropical countries, along the Pacific slope, and in the Southern States. The male is said to obtain its nourishment from any animal, man or beast. It is, however, only the fecundated female that burrows in the skin, developing a painful swelling with vesiculation or pustulation, which may in neglected cases produce ulceration, entail the loss of a member, or even result in death. The favorite point of attack is the feet, about the nail-bed of the toes. Its field of activity, as indicated by its name, is in sand, where children especially are open to its attack. The bite of the insect is at first hardly apparent, but as it becomes gorged and swells to the size of a pea, the bite becomes particularly painful. Sweaty feet are noted to be exempt from its attack. The best preventive treatment is by good, substantial shoes and daily inspection of the feet. The essential oils, particularly the oil of wintergreen, are said to protect against attack. Radical treatment consists in extracting the insect with a red-hot needle, so as to remove also the eggs. The slight resulting wound can be treated with any ordinary emollient.

DEMODEX FOLLICULORUM.

This parasite, also termed steatozoön, entozoön, or acarus folliculorum, lives, infants excepted, in the sebaceous follicles of the majority of healthy persons. It is said to have been discovered both by Henle and Simon. It is a microscopic parasite of worm-like form, and according to Wilson, who has given a most minute description of it, of a length varying from one sixty-fourth to one one hundred and thirty-fifth of an inch. It possesses a head, thorax, and an abdomen, which is several times as large as the thorax and terminates in a pointed extremity. Eight stout, conical legs, all of the same size in the fully developed animal, and six in the young animal, project from the thorax.

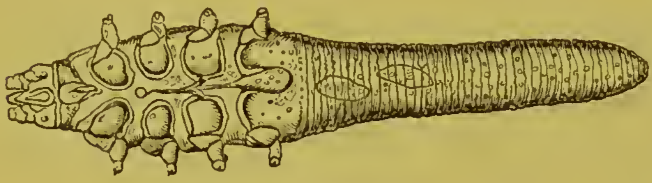

FIG. 24.—Demodex folliculorum.

The demodex of man is said to be similar to the variety that infests cats, dogs, mice, sheep, and others of the lower animals. The minute insect is discovered lying in a sebaceous follicle with the head directed inward. There may be from one to sixteen or more embedded in the same follicle, and they can be extracted without any difficulty. The contents of a follicle being squeezed out, and the product covered with a little oil and placed beneath the microscope, one is enabled readily to detect the parasite, if present. It inhabits the nose, lips, chin, ears, back, and chest, subsisting upon the sebaceoüs substance of the follicle, and, according to Wilson and Geber, there is scarcely an adult upon whom they cannot be found. They are met with in persons who have acne, in cases of comedo and seborrhœa oleosa, as well as in persons who are perfectly healthy. They have never been known, except in the case mentioned by Remak, to have the effect of determining any other disease.

LEPTUS.

There are two species of this insect in the United States—the leptus Americanus and the leptus irritans. They are minute red insects, visible to the naked eye. They have six long legs, the body of the leptus Americanus being pyriform, and that of the leptus irritans oval. The former, called harvest-mite, buries only the anterior part of the body in the skin, especially that of the scalp and axillæ, giving rise to the formation of a small papule. The latter, the irritating harvest-mite, which is of the two species more numerous in individuals, is found during the summer and autumn months in the fields, on the crops, on the grass, weeds, and bushes, especially upon the blackberry and gooseberry bushes. It usually attacks the ankles and legs, causing the development of papules, vesicles, and sometimes pustules, and occasioning an intense itching. An examination of the lesion will generally show to the naked eye the reddish or yellowish-red insect in its centre. The diagnosis established, care should be taken to prevent any further invasion of the insects. They perish in the skin in which they are buried in the course of a few hours or days, after which all symptoms disappear. The application of a weak naphthol, sulphur, or mercurial ointment will generally give relief at once.

CYSTICERCUS CELLULOSÆ.

The presence of the hydatid of tænia solium in the skin and subcutaneous tissue has been demonstrated and reported on by many observers. It is more frequently met with in northern than in southern regions, and is especially common in northern Germany, where pork is used to a large extent, and sometimes not sufficiently cooked. The disease appears in the form of one or more cutaneous or subcutaneous tumors, varying in size from that of a pea to that of a walnut. If the cysticercus has perished, the tissue is generally shrunken and the tumor reduced to the minimum. If, on the contrary, the parasite is still living, the tumor is round or elliptical, smooth, and elastic, although firm to the touch. In its early stage it presents no subjective symptom, but later, through increase in size, it may cause pain. Cysticerci of the skin generally occur in numbers on the back, the lateral parts of the trunk, and the extremities. They may, after reaching a certain size, remain unchanged for years, additional ones in the mean time cropping out. Finally, they may be accompanied by the development of cysticerci of the viscera, or after several years they may become obliterated in the skin or break down into abscesses. They may be confounded with syphilitic gumma, lipoma, sebaceous cyst, carcinoma, or sarcoma. If the tumor be opened and the contents examined by the microscope, the parasite can be readily detected and the diagnosis established. The treatment consists in carefully incising the tumor, scooping out its contents, and managing the wound upon general surgical principles.

FILARIA MEDINENSIS.

The Guinea-worm is a parasite that is found in tropical countries, especially in India, Africa, and Asia. The young worm, which is of microscopic size, enters the skin, as some authors state, by boring. It is held by others that the worm may be taken into the system through food and water, particularly the latter, and find its way to the skin through the circulation. Numerous instances of the former means of ingress of the parasite have been cited by writers on the subject, who have shown that the exposed feet and limbs of the natives are the parts generally attacked. Hyde, in speaking of this circumstance, declares that from merely walking upon ground where the insect abounds, and from bathing in infected water, it is impossible that attack can occur. In support of his view, he mentions that Dr. W. T. Belfield has photographed the worm in sites in which it was discovered in the blood-vessels. At all events, after its introduction into man as well as into the dog and the horse, which it also attacks, the worm remains quiescent for several months. At the end of that time, generally six months, it comes to the surface of the skin, causing more or less systemic irritation, with some local pain, swelling, redness, and a boil-like tumor, which breaking, exposes the head of the worm. The opening continues to enlarge until the worm with its embryos leaves the parts. In the course of some weeks a cicatrix forms in the place where it was. The fully-formed worm is cylindrical in shape, is somewhat flat laterally, tapers toward both extremities, and is milky white in color. It is from one tenth to one twelfth of an inch in thickness, and from one half to two or more feet in length. Only one worm occupies a swelling, but there may be present at the same time a number of swellings and of worms in various parts of the body. The treatment recommended by Horton, who has had large experience with the disease, is by giving large doses of asafœtida, which assists in destroying the worm and in overcoming any tendency to inflammation and suppuration. At the same time the head of the worm should be seized through the boil-like opening of the swelling or through an opening made by an incision, and the whole animal be extracted as far as possible without breaking it in two. If the whole of it cannot be withdrawn, whatever length of it has been secured should be wound around a light piece of card-board or wood fastened at the orifice. The winding of the worm should be attempted daily until the whole animal is extracted, which may require several weeks, when the skin heals. Great care should be taken not to break the worm in the sore, because the part remaining would excite severe inflammation.

ŒSTRUS, THE GAD- OR BOT-FLY.

The gad-fly will, particularly in South and Central America, attack the skin, depositing in it its ova. The embedded larvæ may give rise to inflammatory boil-like swellings, having small central apertures that yield a sanious discharge. The boil-like swellings may change their places, arrange themselves in all forms, as for example like a reddish-purple, tortuous line, as in the case reported by Walker, occurring in Shetland. In a short time after suppuration sets in, the worm may be squeezed out or extracted from the boils, or they open, forming an ulcer. The parasite attacks exposed parts of the body, the neck, back, and extremities being especially liable to invasion.

CULEX, GNAT, OR MOSQUITO.

The mosquito, which is plentiful in all parts of the United States, particularly in marshy places, attacks man in preference to the lower animals. Its sting occasions an itching which is sometimes most violent, especially with those persons having a sensitive skin, and gives rise to the formation of wheals. The irritation may be relieved by ammonia-water, spirit of camphor, peppermint-water, or lotions of corrosive sublimate, naphthol, or borax. A drachm or two of boracic acid in four ounces of peppermint or camphor water often acts promptly in relieving the irritation.

IXODES, WOOD-TICK, OR WOOD-BEETLE.

There are several species of ticks that invade the skin of man and the lower animals. They are met with in woods, on pines and bushes. The female of any one of these species attacks the skin, imperceptibly inserts her proboscis, and gorges herself until the body swells to the size of a pea or even larger. Any forcible attempt at this time to extract the insect is liable to result in breaking off the proboscis, which, remaining in the skin, often occasions considerable inflammation and great pain. Rather than incur this penalty it would be better to wait until the parasite has become gorged and drops off. But its discomfiture may, without waiting, be speedily accomplished by applying to it an oily substance such as oil of turpentine, benzine, or tobacco-juice, which compels it to retract the proboscis and let go its hold on the skin.

There are numerous other insects, such as barley-mites, midgets, flies, ants, bees, wasps, leeches, caterpillars, centipedes, and spiders, which by their bites and stings, and in some cases even by their contact with the skin, may excite wheals, papules, pustules, hæmorrhagic spots, or even severe inflammatory action. Insects often drop upon and attack persons sitting under trees or on the grass, during the spring and summer months, causing, as I have observed, various kinds of lesions that occasion at times a most violent itching or severe inflammation of the skin.

The treatment of the effects of bites and stings inflicted by ordinary parasites is to be managed upon general principles. A soothing ointment or lotion is usually required. The pain that may follow the sting or bite may be relieved at once by almost any alkali, ammonia-water being one of the very best; and a lotion of permanganate of potassium, excellent. Naphthol, corrosive sublimate, and borax lotions and ointments, are also efficacious.

VEGETABLE PARASITES.

TINEA VERSICOLOR.

SYNONYMS.—Pityriasis versicolor—Chromophytosis—Kleienflechte.

TINEA VERSICOLOR is a vegetable parasitic, cutaneous disease, arising from the presence in the skin of the microsporon furfur, and characterized by the development of yellowish, reddish, or brownish furfuraceous patches of various shapes and sizes.

Symptoms.—The parasite of tinea versicolor does not attack the hair or nails, and only superficially involves the epidermis. It manifests its presence by the appearance of yellowish, reddish, brownish, and in exceptional cases blackish irregularly shaped furfuraceous macules or patches of various sizes. It occurs most frequently between the twentieth and fortieth years of age. It may, however, occur at any age. It usually first appears as small, round or oval, erythematous or yellowish spots slightly elevated above the surface. They are usually situated upon the chest or shoulders, and may be upon the abdomen, back, shoulders, arms, and thighs, but never appear upon the face or hands. They vary exceedingly in number and color as well as in size and shape. In some cases they are few and isolated, not exceeding half an inch in area, but in other cases they are so numerous as almost to cover the entire surface of the chest and abdomen. They increase in size by peripheral extension, and frequently coalesce so as to form large, irregular patches. They are, when first observed, usually reddish or yellow, but may be of any shade from light yellow to dark brown. In a remarkable case observed by Tilbury Fox, the patient, who was from a tropical climate, was covered on the back and sides with black, desquamating patches, which, upon microscopical examination, were found to be patches of tinea versicolor. In general, however, the maccules or patches are of that peculiar fawn-colored cast that the French describe as the tint of "*café au lait.*" Tinea versicolor never produces any constitutional symptoms, and is not accompanied by any marked subjective symptoms. The skin upon which the eruption is situated may become congested or irritated, and may assume an eczematous or urticaria-like appearance, but this is a rare occurrence. The scales of which the macules are composed may be abundant, or loose, scanty, and adherent. They are very fine, and of a mealy, branny appearance, and can readily be detached by rubbing or scraping the affected surface. Their amount varies with the cleanliness of the patient, being always less after bathing. If not thus removed, if allowed to accumulate on the surface, they give it a dusty, rough appearance, readily removed by friction. When the skin is freely bathed with perspiration, they form a mealy paste or shape themselves in the folds of the skin into pasty rolls. The eruption causes, in stout persons and in those who perspire freely, more or less annoyance from itching. The itching is, however, in many cases either absent or so insignificant that the presence of the disease is not suspected until the eruption is accidentally discovered. Thus White very rationally explains its more frequent discovery in phthisical than in other patients by the circumstance of its revelation incidentally to examining the chests of those patients for a different specific purpose. The disease has a tendency to invade the surrounding epidermis, and when removed it is very apt to reappear. In many cases it regularly appears after the winter months have passed away, and at that period readily yields to treatment in a few weeks, reappearing at about the same time in the following year. Patients are occasionally met with who have had these periodic returns of the disease for twenty years or more. It is rarely or never observed in children, and is equally rare in persons over fifty or sixty years of age. Its course is steadily progressive. If untreated it may last for many years, but it does not in some cases spread with the same rapidity or invade so large a surface as in others. According to my experience, it occurs more frequently in persons with a harsh skin than in those whose skin is soft and delicate. It attacks either sex.

Diagnosis.—While the diagnosis of tinea versicolor may be in general said to be comparatively easy, it can not be always so pronounced, and, as there are quite a number of affections simulating it, a collation of its symptoms will constitute the best means of differentiating it from them. The principal features of the eruption to be remembered are its usual location on the chest and sides ; the absence of the eruption on parts exposed to the light ; its frequent fawn color (the "*café au lait*" tint of the French) ; the slight elevation of the spots ; their occasional erythematous tendency, especially during the heated period ; and their desquamative character. The last-mentioned point especially should form the salient feature for diagnostic purposes, and, if combined with microscopic examination, will leave little doubt as to the character of the disease. The spots may at times assume the character of wheals, resembling those of urticaria, but no scales are present in the latter affection. In persons who perspire freely the spots may present a punctated appearance, with elevated and inflamed papillæ simulating the eruption of eczema; but eczema is accompanied by more intense itching and burning symptoms than this affection, and rarely appears upon the regions usually involved in tinea versicolor. The character of the scaling is also different in the two diseases. The resemblance between the patches of tinea versicolor and the lesions of chloasma, vitiligo, lentigo, and the macular syphilides, is only superficial. Chloasma consists of a more or less diffused pigmentation of the mucous layer of the epidermis, while tinea versicolor is an affection of the horny layer. The patches of the former are smooth and not elevated, while those of the latter are elevated and composed of fine furfuraceous scales. The regions involved in the two diseases are also different. Chloasma occurs frequently on the face, a region that is rarely invaded by tinea versicolor.

Circumscribed and diffused pigmentation may result from inflammatory eruptions and cutaneous irritations, and may remain after blisters, but the history and the absence of scales will decide the diagnosis. Vitiligo cannot well be confounded with tinea versicolor, for the circumscribed areas in the former are white, but discolored in the latter. The borders of the patches in vitiligo are more or less pigmented, and besides, they are smooth and altogether unlike the elevated scaly patches of tinea versicolor. Freckles (lentigo) are of the same nature as chloasma, differing from it only in their size. They may present a superficial resemblance to tinea versicolor in its macular stage, but they have no scales, and they are principally observed upon the face and hands, where the parasite of tinea versicolor is known not to thrive. Syphilitic macules may prove perplexing in the diagnosis, and may give rise to confounding the two diseases. The color of syphilitic eruptions is, however, never so decidedly yellow as that of tinea versicolor. Besides, the eruptions of syphilis show neither elevation nor desquamation. They are of a coppery hue, and an examination always develops a history of infection. They are also not limited to the chest, but may occur upon any portion of the body. They are usually small in size, circular in form, and unaccompanied by itching. Other manifestations of syphilis, too, are usually present at the same time. The existence of syphilis in a patient affected by tinea versicolor may, it is true, lead to some doubt as to the nature of the latter eruption, but the presence of scales will point to the correct diagnosis, which the microscope will confirm with unerring certainty.

Pathology.—The lesions of tinea versicolor are largely composed of the spores and mycelium of the microsporon furfur. This parasite ramifies through the superficial layers of the stratum corneum, but does not penetrate the rete mucosum nor attack the hairs or nails. The mycelial threads appear to be inextricably woven throughout the epidermic scales. The spores manifest a tendency to cluster. If the scales be detached from a spot, and placed in a drop of liquor potassæ, and then examined with a microscope having a power of five hundred diameters, the mycelial threads will be seen to form an intricate network of straight and looped, entangled and braided, crossed, curved, and serpentine lines. The threads vary in diameter from .0015 mm. to .0036 mm., and frequently terminate in spores. Isolated spores and clusters of spores may also be observed in the field. The spores are round or oval or irregular in shape, and vary from .0023 mm. to .0084 mm. in diameter. They are at times nucleated, and are highly refractive. They may be developed from the mycelium or from preexisting spores by a process of cell-division.

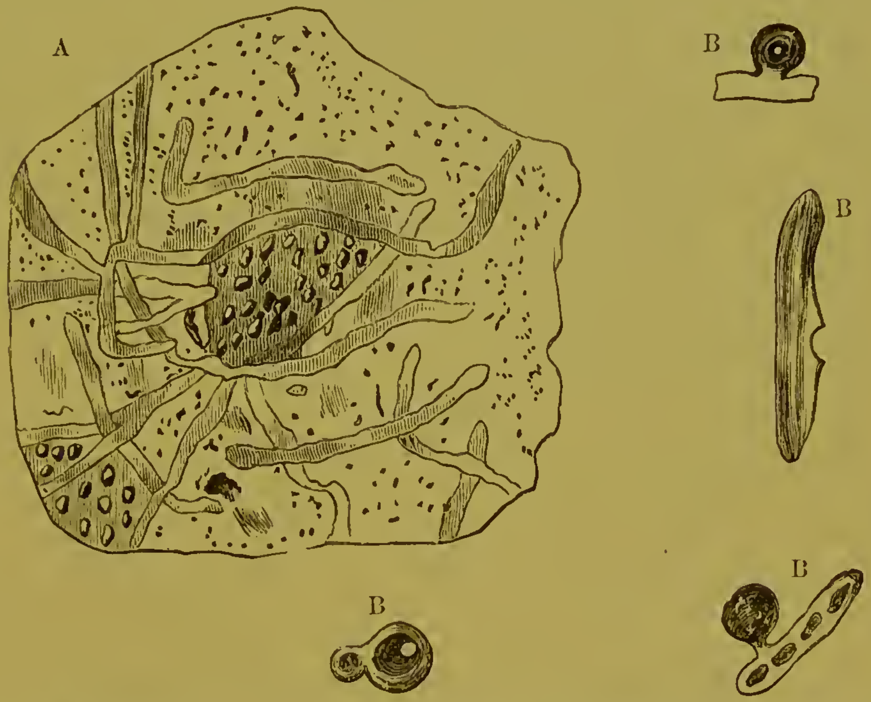

FIG. 25.—(Microsporon Furfur.) The illustrations here presented are by Bristowe, and exhibit: A, a patch of epidermis of chest, showing mycelium and clusters of spores, × 600 diameters. B, sporules springing from one another and from mycelial cells. Some may be seen attached to the latter by stalks × 1200 diameters.

Duguet and Hericourt* through recent research claim that the bacillus tuberculosis is only a micro-organic form of development of the fungus microsporon furfur.

Etiology.—Tinea versicolor is caused solely by the presence on the skin of the vegetable parasite known as the microsporon furfur. The parasitic nature of this disease was discovered by Eichstedt, of Greifswald, in 1846. It is contagious only under very exceptional circumstances, and to a very mild degree. The manner in which it is conveyed to the skin is unknown. It is probable, however, that the spores are wafted about in the atmosphere, and thence deposited on the patient's clothing, or that they are contained in the water in which the clothing is washed, and so conveyed to the skin.

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* The Pharmaceutical Journal and Transactions, London, May 29, 1886.

Tinea versicolor may appear in either sex, in the rich as well as in the poor, in those who bathe frequently as well as those who are careless in that respect, and in the robust as well as in the weak.

Treatment.—The importance of treatment has always been underestimated, and the consequence of this has been either incomplete cure of the disease or entire failure in it. Thus the French have considered the treatment of this disease to be an easy matter, and have thought the preparations of sulphur quite sufficient to effect a cure. Hardy recommends them either in the form of baths or ointments.

He says, further, that the acid nitrate-of-mercury ointment produces the same effect; also that the parasite disappears equally well by applying lotions of corrosive sublimate or by the use of mercurial baths, and that few cases are not amenable to this treatment.

The Germans seem to think that cleanliness is about all that is required to effect a cure. They recommend change of underclothing, and daily ablutions with soap and water, under which treatment, they say, a gradual cure is effected. When, however, it is necessary to proceed more rapidly, they allege that an application of green soap, left on the skin for several days, is quite sufficient to produce a cure. The method of the late Tilbury Fox was to wash the surface with yellow soap, and then sponge it with vinegar and water, after which he applied a solution of six drachms of sodium hyposulphite in six ounces of water. In obstinate cases a bath of sodium hyposulphite is serviceable. Tilbury Fox's idea was to get rid of the greasy matter of the skin with soap, and then to continue the use of the antiparasitic until every trace of the disease had vanished. Balmanno Squire uses a more extended treatment, as follows: The patient first thoroughly soaps the affected skin. After this he takes a warm bath and, as soon as he has dried himself, scrubs the discolored surface with a flesh-brush. He then, every day, rubs well in, over every patch of the disease, a weak mercurial ointment. The plan first described has, he asserts, the following advantage: The epidermis is so thoroughly softened that, by rubbing, the more superficial portions of the fungus are readily detached, and the more deeply seated portions are exposed to the direct action of the remedy. By this process patches that have existed for many years may be completely removed in about a week. Balmanno Squire also uses an ointment of precipitated sulphur, increasing its effect by the addition of a small quantity of hepar sulphuris. He mentions using a twenty-per-cent. ointment of chrysophanic acid. Startin recommends washing the skin with solutions of sodium hyposulphite, a drachm to the ounce; sulphurous acid, two drachms to the ounce; mercuric bichloride, two grains to the ounce; any one of them to be employed two or three times a day, followed by the application of an ointment of white precipitate, thirty grains to the ounce.

My experience with this disease in private practice, as well as in the Philadelphia Hospital for Skin Diseases, has led me to view its radical cure as not quite so easy of accomplishment as might be inferred from the light manner in which authors refer to the subject. I have seen patients, after apparent cure, wander from one physician to another for treatment, although the usual remedies had been again and again persistently applied. While I cannot positively assert that persons of anæmic, phthisical, or cachectical diathesis are predisposed to it, I must, nevertheless, here record the fact derived from my own observation up to the present time, that in patients of those classes among whom it is common, it is of prime importance to their cure to institute thorough constitutional treatment. The principal treatment must, of course, be local. I have found the following prescriptions to be the most serviceable. The affected parts should be sponged night and morning with either of these lotions:

℞ Pulveris sodii biboratis............. ʒ iij.
Hamamelis dest.................... f ℥ v. M.

Or,

℞ Thymol.......................... ʒ ss.
Spiritus vini rect................. ℥ j.
Glycerinæ......................... ℥ ij. M.

Either of these preparations will keep the spots clean, remove all the sebaceous deposits from the surface, and act at the same time as a mild antiparasitic. After this treatment has been carried out for a few days, and the epidermic scales thus softened have become detached, a stronger antiparasitic should be applied. The most effective remedy that I have found for this purpose is the oleate of copper, either diluted with oleic acid into a soft ointment or a ten- to a twenty-per-cent. ointment thereof made with lard. The salts of copper, since my experiments with the oleates, have been universally admitted to possess marked antiseptic and antiparasitic properties, and, indeed, nothing else has, in my hands, rivalled their effects. The oleate of copper admits of the most simple and thorough application. It not only destroys the parasite on the surface, but by its deep penetrating action arrests its development in the interstices of the epidermic cells. No parasitic skin-disease yields so readily to any one remedy as tinea versicolor does to the copper oleate. I have succeeded with it in relieving and permanently curing many obstinate cases of the disease.

In applying this oleate it should always be borne in mind that a very small quantity is sufficient to go over the diseased surface. The oleate will rapidly penetrate the skin, and a large amount smeared upon the surface will merely discolor the linen without being of any additional service. I would in all cases advise that the lotions which I have here recommended should be used instead of water to keep the parts clean, thus preventing the spreading of the parasite. I believe that in this, as in all other vegetable parasitic diseases, the fungi propagate themselves more rapidly when water is used on the parts than they otherwise could. I therefore in all cases prohibit the use of water on the parts affected by the parasite, and depend for cleanliness upon the application of the lotions previously mentioned. This treatment should be continued until discoloration and scales are no longer noticeable and a new and healthy surface has formed.

Prognosis.—Tinea versicolor is usually a trivial affection, although it sometimes gives rise to a great deal of annoyance to the patient. It yields with readiness to treatment faithfully carried out. It is apt to reappear if the parasite be not thoroughly eradicated, As a general rule, two to three weeks suffice to bring the disease to a conclusion, but relapses may occur.

TINEA FAVOSA.

SYNONYMS.—Favus—Porrigo favosa—Dermatomyeosis favosa—Crusted ringworm—Honeycomb ringworm—Erbgrind—Teigne faveuse.

Tinea favosa is a contagious vegetable parasitic disease produced by the achorion Schönleinii, and characterized by the development of a number of small, round or oval, cup-shaped, pale-yellow, brittle crusts, which are usually situated over the hair-follicles, and perforated by hairs.

Symptoms.—Favus may be limited to the hairs and the hair-follicles (tinea favosa pilaris), or to the epidermis (tinea favosa epidermis), or to the nails (tinea favosa unguium), or it may involve the entire surface and all of the cutaneous appendages (tinea favosa universalis). In a case of the latter character, observed by Kundrat, and reported to the Vienna Imperial and Royal Society of Physicians, the fungi had been conveyed from the patient's fingers to his food, and then into his stomach, where they had invaded the mucous membrane, developing the characteristic cup-shaped crusts, producing uncontrollable vomiting and diarrhœa (favosa gastritis), that soon resulted fatally. Favus usually appears first upon the scalp, but it may develop upon any portion of the body. It is not infrequently met with upon the face and neck. It usually appears first as a circumscribed, superficial inflammation of the skin, accompanied by slight desquamation and more or less itching. The affected surface is reddened in color, covered with minute scales, and may be the seat of a minute vesicular eruption. In a few days several small, bright-yellow bodies may be observed in the hair-follicles. They are depressed beneath the surrounding epidermis, and are perforated by hairs. These favoid bodies are fungous masses that proliferate in the hair-follicles, surround and penetrate the hair-shaft, and insinuate themselves between the upper layers of the epidermis, where they ramify in all directions. They ultimately attain the size of a split pea or that of a small bean, and then appear as pale yellow or sulphur-colored cup-shaped crusts situated in and around the hair-follicles. They are umbilicated, and perforated by one or more hairs. Their margins are slightly elevated above the surrounding surface. They consist of a series of concentric layers closely packed together. They are isolated at first, but sooner or later coalesce so as to form large, elevated crusts, in which the circular forms of the component favus cups may be recognized for some length of time. These crusts gradually become dry and brittle, and change in color from light-yellow to a dirty-gray or mortar-like hue. They increase in size and become rough and irregular in shape, and are frequently surrounded by an inflammatory areola. They vary in number and size, and are situated upon a depressed, reddened, and more or less atrophied surface, from which they can be removed without much difficulty. The itching to which they give rise is sometimes so intense that the patient is unable to refrain from violent scratching. This is productive of various complications—the disease is spread over a larger area than before, or conveyed to the finger-nails, or a severe eczematous inflammation terminating in the formation of pustules may ensue.

The hairs in the affected area soon become involved, their growth being impaired. They lose their normal glossy appearance and become dry, dull, and brittle, and finally fall out. The loss of hair is due to atrophy of the hair-papillæ and hair-follicles from the pressure of the crusts, and is apt to be permanent. Favus of the body and extremities is characterized by the development of discrete sulphur-colored scutula or cup-shaped crusts at various points upon the surface. It not infrequently disappears spontaneously in a few weeks or months by the dropping off of the scutula, as the follicles of the downy hairs are too shallow to admit of an extensive proliferation of the parasite. In some cases, however, the disease may remain for years. I have seen the case of a boy of nine years old in which the scalp, face, body, and limbs were involved. The disease had persisted without abatement for four years. The patient, however, was of scrofulous diathesis, and had been poorly fed and badly clothed. All of his surroundings were of the most depressing character, and appeared to combine to render his integument a fertile soil for the proliferation of the fungus. In Kundrat's case the entire surface was affected. Abscesses formed in the thighs, and death finally resulted from severe gastro-intestinal disturbance marked by uncontrollable vomiting and diarrhœa. At the post-mortem examination numerous erosions and diphtheritic swellings were found on the gastric mucous membrane, and the intestines contained a quantity of foul putrescent material mixed with mucus. Kundrat at once declared that the swellings were due to the favus fungi, and the microscope confirmed his assertion. It is probable, however, that the gastric mucosa was previously unhealthy, or it would not have furnished a suitable nidus for the parasite. Favus of the nails (tinea favosa unguium) is a rare affection, and is usually secondary to favus of the scalp or some other region of the body. It appears at first as small light-yellow or sulphur-colored deposits in the substance of the nail, which increase in size and produce more or less thickening and other changes from defective nutrition. The nails finally become soft or brittle, and undergo a sort of cheesy degeneration. This kind of favus is an obstinate form of the disease.

Favus is accompanied by a peculiar odor which is difficult to describe, but which, when once experienced, can never be forgotten. It is similar to that of mouldy straw, and has been characterized as "mice-smell," which, by the way, is really not the odor of mice, but of their urine. Favus of the scalp may appear in the form of red, scaly rings, simulating tinea tonsurans, but on close examination the characteristic scutula or cup-shaped crusts will be found embedded in the outer ring.

Diagnosis.—The diagnosis of favus is usually easy. The characteristic yellow, friable, cup-shaped crusts, with their peculiar odor of mice, are not found in any other disease. When the eruption has existed for some time, however, and the crusts become broken down, or when an eczematous inflammation has developed around them from excessive scratching, the nature of the case may be somewhat obscured. In simple eczema, however, the crusts are brownish in color, not yellowish, and are situated upon an excoriated base; there is no mice-smell, and the hairs are not affected. The reddened furfuraceous appearance of the skin in the early stages of favus is not unlike that which is observed in psoriasis, but the appearance of the yellow favoid bodies reveals the true character of the former disease. Tinea tonsurans, when accompanied by suppuration and pustulation, might be mistaken for favus. The resemblance, however, is only superficial. In tinea tonsurans the hairs present a nibbled or broken-off appearance, whereas in favus they are unchanged in length, and drop out of the follicles. As pointed out by Behrend and Duckworth, if a hair affected by the tricophyton (the parasite of tinea tonsurans) be moistened with chloroform, it will turn white in two or three minutes; while, under the same test, normal hair, or the hair from a patch of favus, will not exhibit any change whatever. Tinea circinata has been confounded with favus, but the symptoms and course of the two affections are so widely different that the error should not be made. In all doubtful cases a hair from the suspected patch or a portion of the crust, or from the epidermis, should be placed in a solution of caustic potash and examined microscopically for the achorion Schönleinii. A microscopic power of from two hundred and fifty to five hundred diameters will be necessary to make the characteristic features of the parasite plainly visible.

Pathology.—Favus may affect the hairs and nails as well as the hair-follicles and the adjacent epidermis, but the latter are chiefly involved. The crusts are composed almost entirely of the mycelium and spores of the achorion Schönleinii. The mycelium consists of narrow, flattened threads or tubes ramifying luxuriantly in all directions. They are pale green or gray in color, and vary in diameter from .0023 mm. to .0028 mm. There are two varieties of mycelial tubes or threads—those which are apparently empty, and those which are divided into small compartments containing numerous granules or young spores. The fully developed conidia or spores are round or oval bodies, varying

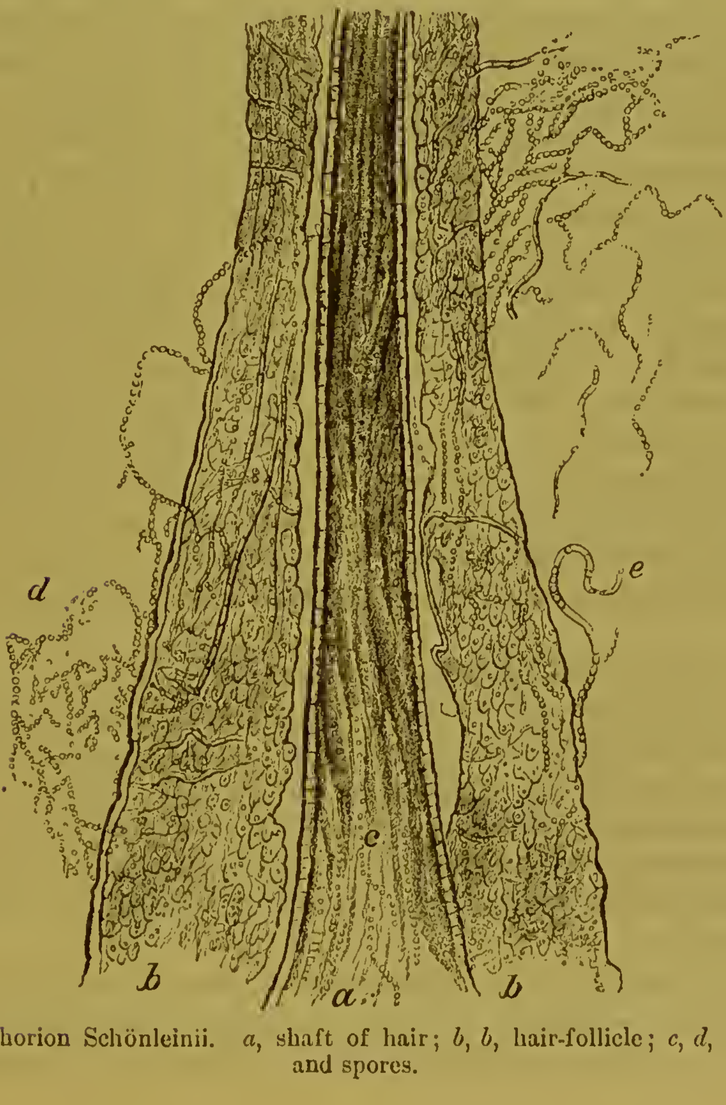

FIG. 26.—Achorion Schönleinii. *a*, shaft of hair; *b*, *b*, hair-follicle; *c*, *d*, *e*, mycelium and spores.

in diameter from .0023 mm. to .0051 mm. They are present in great numbers, and are frequently massed in groups. Forms intermediate between spores and mycelium may also be observed.

The parasite penetrates into the hair-follicles, and insinuates itself between the superficial cells of the corneous layer. It also attacks the inner and outer root-sheaths of the hair, and may even invade the hair-shaft. Obliteration of the hair-follicles and atrophy of the hair-papillæ finally result from the continuous pressure of the parasitic growth. Various inflammatory and atrophic changes take place in the corium from the same cause. Suppuration and permanent cicatricial depressions may or may not occur. In tinea favosa unguium mycelium and spores are found in the nail-substance and in the nail-bed, and are ultimately productive of various degenerative changes.

Etiology.—Favus is produced by the growth of the achorion Schönleinii, a vegetable parasite attacking the follicles, the nails, and the upper corneous layers of the epidermis, and is propagated by contagion. It is exceedingly common in the lower animals, especially in cats, mice, and rabbits, and is frequently communicated from them to man. In many cases, however, no history of direct contagion can be established : in these cases it is probable that the spores of the fungus were transferred through the medium of the atmosphere.

Favus may occur at any age, and among the rich as well as the poor. It is met with most frequently, however, in childhood, and among scrofulous and debilitated subjects. The susceptibility of individuals to its contagion varies greatly. It is probable that a peculiar condition of the integument is necessary to its continued existence.

Treatment.—Constitutional measures are often very advantageous in the treatment of favus, especially in debilitated patients and in those of a syphilitic or scrofulous diathesis. For patients of the latter class I know of no better remedies than cod-liver oil administered in combination with the sirup of the iodide of iron, or small doses of potassium chlorate administered in water after meals. Nourishing food, fresh air, and healthful exercise are also of paramount importance.

The parasite can be destroyed, however, only by thorough and persistent local treatment. In reviewing the measures advocated by various writers, it does not appear that much improvement has been made upon the methods of the Frères Mahon. Epilation, so universally recommended, cannot be claimed to be in conformity with modern therapeutics. It is injurious to the hair-follicles and painful to the patient, and should be discarded as a relic of medical barbarism of the last century.

The first object to be accomplished is the removal of the crusts, after which an antiparasitic should be applied to destroy the fungi on the surface as well as in the hairs and hair-follicles. The best means for removing the firm crusts is by the application of oil, which softens and loosens them. I have found the oil of ergot to be the most effective of any for this purpose. It softens and produces also a mild astringent effect upon the epidermis. The olive, almond, and carbolized oils possess, in a much less degree than it, properties suitable for the purpose. The crusts and the surrounding epidermis should be kept saturated with oil for twenty-four hours before using any other application. The poultices of various kinds that are usually employed to soften and facilitate the removal of the crusts are in various ways unpleasant as well as positively injurious to the patient. Through the elevation of the temperature of the surface which they produce, proliferation of the fungus is rendered more rapid than by its natural increase. Providing sustenance for it, they necessarily hasten its maturity. Not only is this so, but furnishing the epidermis with moisture, they conduce to its swelling to such an extent that the hairs, entirely filling the follicles, prevent entrance thereto of all antiparasitics. Warm-water dressings and bandages produce the same ill effects, and should for this reason be abandoned. The soap-spirit of the Germans is a severe remedy, not only soaking into and softening the favus-crusts, but acting destructively on the epidermis, the upper layers of which are often cast off in consequence, thereby furnishing a rich field for the propagation of the fungus. As a detergent lotion, which is at the same time antiparasitic and softening to the crusts, without affecting the epidermis, I know of nothing better than a twenty-five- to a fifty-per-cent. glycerine solution of boro-glyceride. This solution should be sponged thoroughly over the affected surface after the crusts have been covered with oil of ergot for twenty-four hours. After an hour or two the crusts will readily peel off, and the epidermis will be clear and clean, ready for the application of one of the potent antiparasitics. First among these in order are certainly the mercurials in their many forms. To apply immediately, however, according to the French method, a solution of mercuric bichloride, is worse than useless, for the albuminous surface is sure to be coagulated by it, forming a protective layer of mercuric albuminate over the follicles, beneath which the parasite may live in security. The old salves of white precipitate are no better, for they artificially occlude the follicles, besides congesting the skin in such a manner as to make it grasp the hair tightly and prevent the entrance of the remedy into the follicles. In cases of favus complicated by pustular eczema, due to excessive scratching, I have found the naphtholized zinc-oleate ointment of great service. It would be useless to employ any remedies in the form of ointments or oils immediately after the crusts have been removed, for the moist condition of the surface prevents their penetrating deeply, especially where the skin is congested, the hairs swollen, and the follicles almost closed. I therefore direct the hair and skin to be well dried, and after a few hours apply an active antiparasitic remedy freely over the affected surface. The antiparasitic agents *par excellence*, I should add, are the oleates of mercury and of copper. I do not wish to be understood to mean by the oleates of mercury the numerous and often worthless solutions of mercuric oxide in oleic acid, pharmaceutically described by the percentage of mercuric oxide that they are supposed to contain. In speaking of the mercuric and the copper oleates I refer only to the true and definite chemical compounds between oleic acid and mercury or copper. I generally prescribe them as follows:

℞ Ungt. hydrargyri oleatis............ ℥ ss.
Adipis.......................... ℥ ss.

Or,

℞ Cupri oleatis...................... ʒ ss.
Adipis .... ℥ j.

I use a little of the former ointment first, rubbing it well in with the finger-tips, and after a few days alternate it with the latter, which is astringent, and relieves any irritation that may be set up by the former. I have never observed any irritating symptoms from the external use of these salts, but, on the contrary, have invariably noticed from it a speedy disappearance of the fungus. These applications should be made every day or two, and continued for three or four weeks. If, after a cessation of treatment for a week or two, the hair does not assume its natural aspect, and new favus-crusts develop, the treatment should be begun afresh. I have, however, in but few instances been obliged to resume it. In the manner just described, I have effected a cure of several severe cases of favus in about six weeks, and in no instance whatever have I been obliged to resort to epilation. In all cases, after the crusts have been removed, I prohibit the use of water either as a lotion or as a detergent, for the reason that it acts, as I have already declared, as an agent in the propagation of the fungus. To determine when the treatment has been sufficient, I have from time to time extracted a single hair from each of the worst places, in order to see if the fungus were still adhering thereto, and have been thus constantly guided in my course. I feel sure that by the use of the oleates of mercury and copper the barbarous method of epilation will eventually be rendered unnecessary, that the treatment of favus will become not only less severe, but its cure far more effective also by being shortened. Favus of the epidermis or parts not covered with hair can easily be cured by removing the crusts in the manner previously described, and then applying either the mercury or the copper-oleate ointments. Favus of the nail, when the disease is circumscribed, is best removed by the knife; but if the nail be affected in its entirety with perverted nutrition and hypertrophy, by covering it with the mercury or copper-oleate ointment, and occasionally clipping it with the scissors.

Prognosis.—Favus can always be regarded as a curable affection, only one fatal case having ever been observed. If treatment be instituted in the early stages of the disease, a cure may be obtained without any ill effects. If, however, the parasite has been growing luxuriantly for a considerable period, and has produced atrophy of the hair-follicles and destruction of their papillae, permanent cicatrization and loss of hair are certain to result. Favus is seldom accompanied by any constitutional symptoms, but after years of persistence the constant irritation that it produces may seriously impair the general health.

Ordinary cases of favus yield to proper treatment in six or eight weeks, but in obstinate or neglected cases the disease may be prolonged for months or years. It will be found to be more intractable in scrofulous persons as well as in those who are of unclean habits, or who are ill nourished, poorly clad, and badly housed, than in any others. If left to take its course without interference, it exhausts its soil very slowly; and, while it does in some cases disappear spontaneously after the destruction of the hair-follicles, in other cases it lasts throughout life. Favus of the body is far more amenable to treatment than favus of the scalp. Favus of the nails is an obstinate affection. The disease is one subject to relapses in all cases, unless the parasite is thoroughly extirpated.

TINEA TRICOPHYTINA.

Tinea tricophytina is a contagious parasitic disease affecting the hairs, the hair-follicles, the nails, and the epidermis of various portions of the body. It is produced by a microsopic fungus known as the tricophyton, and is characterized by the formation of circular erythematous, scaly patches, vesicles, and tubercles, and by various morbid changes in the hairs and nails of the affected area. For convenience of description, the disease is subdivided in accordance with the region of the surface affected. When the scalp is attacked the disease is termed tinea tonsurans, or tinea trycophytina capitis; when the beard is affected, it is termed tinea sycosis or tinea trycophytina barbæ; and when the nails are involved it is termed onychomycosis or tinea trycophytina unguium; when, finally, the body is invaded, it is termed tinea circinata, or tinea trycophytina corporis.

TINEA TONSURANS.

Synonyms.—Tinea tricophytina capitis—Herpes tonsurans—Ringworm of the scalp—Scherende Flechte—Teigne tondante.

Tinea tonsurans is a contagious vegetable parasitic disease of the scalp, produced by the tricophyton, and characterized by the formation of one or more circular grayish or erythematous scaly patches, upon which the hairs are ragged, broken, or destroyed.

Symptoms.—The disease usually manifests itself first as a small, round, pale-red or grayish spot, covered with fine, branny scales and slightly elevated above the surrounding surface. On close examination, one or more similar lesions may be discovered at other points upon the scalp. In some cases a ring of minute papules or papulo-vesicles may be observed upon the periphery of each diseased spot. They are ephemeral in character, however, and speedily terminate in desquamation without becoming transformed into pustules. The hairs may not be perceptibly involved at first, but as soon as the parasite penetrates into the follicles, they become dry, lustreless, and brittle, and finally either drop out spontaneously or break off near the surface of the scalp. The disease spreads rapidly by peripheral extension, forming circular patches of varying size that are slightly elevated above the adjacent surface. They are pale-red or bluish-gray in color, and covered by fine white or opaque scales. They are usually situated upon the crown or on the parietal regions of the head, but they may occur upon any portion of the scalp. In some instances they are situated partly on the scalp and partly upon the neck. The follicles of the affected area are prominent, the hairs withered and dull in appearance, and either bent or broken off just above their point of exit. The stumps are thickened and uneven, presenting the nibbled, ragged appearance characteristic of the disease. They are held loosely in the follicles, but, owing to their brittleness, they usually break off at or beneath the surface when an attempt is made to extract them. As the disease progresses they finally become involved throughout their entire length, and then drop out spontaneously, producing more or less baldness. As, however, the hair-papillæ are rarely destroyed, the baldness is only temporary. In mild cases the disease does not penetrate into the follicles, and manifests itself only as a reddened desquamative condition of the surface. The typical erythematous rings occasionally observed are due to a spontaneous disappearance of the disease from the centre of the affected area while it is advancing at the periphery. In other instances the hairs are involved, but not so extensively as in the typical form of the disease. In severe cases the hair of the greater portion of the surface may fall out. In the case of scrofulous or debilitated children, the diseased areas may become the seat of a pustular eruption terminating in the rupture of the pustules and the formation of thick yellow crusts upon the surface of the scalp. This is a very contagious form of the disease. It is usually accompanied by enlargement of the cervical glands and other symptoms of constitutional irritation.

Tinea tonsurans is seldom attended by any pain, but more or less itching is present in all cases. The disease may run an acute course, but it usually manifests a tendency to become chronic. The patches in chronic cases may be either large and smooth, and almost completely denuded of hairs and scales, or they may be covered with a profusion of scales and stumpy hairs, or, as in the disseminated variety, they may consist of a number of minute scurfy spots covered with apparently healthy hairs, among which, however, a few black hair-stumps may be observed. In the violent form of tinea tonsurans, known as tinea kerion or kerion Celsi, the fungus penetrates into the deepest portion of the follicles and produces a diffused exudative inflammation involving all the layers of the skin as well as the subjacent cellular tissue. It usually begins as one or more grayish or erythematous patches similar to those which appear in the ordinary form of the disease. The patches, however, soon become yellowish or purplish in color, and boggy, tumid, and painful to the touch. They are considerably elevated above the surrounding surface, and are covered with a yellow, glutinous substance that exudes from the distended follicles. The hairs become brittle and loosened, and finally fall out. When the inflammation is severe, superficial abscesses may be formed and terminate in ulceration of the corium, obliteration of the hair-follicles, and permanent loss of hair. Kerion usually runs an acute course, and terminates in speedy recovery by the destruction of the fungus. In some cases, however, it may assume a chronic character, and remain for a long time.

Diagnosis.—The diagnosis of tinea tonsurans is usually easy. Typical cases, presenting erythematous patches covered with fine scales and short, nibbled-looking hairs, cannot be mistaken for any other disease. Blackish dots or stumps of hairs situated on disseminated scurfy areas are also significant. The only affections that present any resemblance to tinea tonsurans are squamous eczema, seborrhœa, psoriasis capitis, alopecia areata, and impetigo contagiosum. In squamous eczema the surface of the scalp is reddened and scaly, but the hairs are normal in character, and are firmly seated in the follicles. There is no history of contagion ; the disease is chronic in character, and the diseased area does not continually increase by peripheral extension. In squamous eczema, moreover, the itching is usually intense. In seborrhœa the surface is scaly, but it is normal in color, and the hairs are not involved. The lesions of psoriasis capitis may present a superficial resemblance to those of tinea tonsurans, but the history and course of the two affections are so widely different that they ought not to be confounded with each other. Alopecia areata has been mistaken for tinea tonsurans. In typical cases of the former affection, however, the smooth, white, polished surface of the scalp, and the complete absence of hairs and scales from the affected area, point unerringly to the true nature of the disease. In doubtful cases a microscopical examination would be necessary to determine the presence or absence of the tricophyton. This parasite can be easily discovered. One or two of the affected hairs, or a portion of the epidermis, should be covered with a drop of liquor potassæ and placed under a microscopic power of two hundred and fifty diameters, when the fungus and its lesions will be plainly visible. According to Duckworth and Behrend, the chloroform test will also establish the diagnosis. If a hair affected by the tricophyton fungus be placed in chloroform it will immediately turn white, while normal hair will remain unchanged.

Tinea favosa in its first stages may simulate the erythematous lesions of tinea tonsurans, but the characteristic yellow, cup-shaped crusts of the former should forbid continuous error. The chloroform test may also be employed if necessary to make the diagnosis, as hairs affected by favus do not change in color when they are dipped in chloroform. In favus, moreover, the hairs can usually be pulled out by the roots, while in tinea tonsurans they are brittle, and break off near the surface if an attempt be made to extract them. Tinea kerion can readily be recognized by the boggy and inflammatory character of the lesions, and the semi-purulent, glutinous exudation by which they are covered. The lesions of impetigo contagiosum are disseminated, and may resemble the pustular complications of tinea tonsurans. Impetigo is an acute affection, however, which does not involve the hairs, and which usually terminates spontaneously in ten or twelve days.

Pathology.—The lesions of tinea tonsurans are due to the growth of a vegetable parasite, discovered by Gruby in 1844, and termed by Malmsten the tricophyton tonsurans. It affects the hairs, the hair-follicles, and the superficial layers of the epidermis. It is composed of mycelium and spores. The latter are present in great abundance in all the affected structures. Their presence between the corneous layers of the epidermis produces more or less irritation, resulting in the formation of vesicles, papules, or pustules upon a reddened, congested base. They then invade the follicles, penetrate into the follicular walls, and into the substance of the hair, producing occlusion of the follicles and distortion and disintegration of the hair. In severe cases the inflammation of the perifollicular tissue may be so intense as to result in destruction of the follicles and in permanent loss of hair. In tinea kerion the deepest recesses of the follicles are reached by the parasite, and the resulting irritation is so severe as to produce extensive inflammatory exudation, and marked augmentation of the secretions of all the cutaneous glands. The mycelium is scantily developed, and consists of long, slender, forked threads, which are frequently jointed, and ramify in all directions. The spores are small, rounded, refractive bodies that manifest a marked tendency to arrange themselves in rows or groups. They are found in great numbers around the hair-bulbs and papillæ, as well as in the hair-shaft, which is irregularly disintegrated or else cleft longitudinally.

Etiology.—Tinea tonsurans is produced by the tricophyton fungus, and is propagated by atmospheric diffusion as well as by contagion.

It may attack the rich as well as the poor, and the robust as well as the weak and debilitated. Some persons, however, are more susceptible than others to its attacks, owing to a peculiar condition of their epidermis, which has not yet been conclusively determined. Tinea tonsurans is essentially a disease of childhood. It occurs in the lower animals, and is frequently communicated by them to children.

Treatment.—The treatment of tinea tonsurans should be prophylactic as well as curative. The patient should, as far as possible, be isolated from other children. He should be compelled to sleep in a separate bed or room, and should be cautioned against handling the wearing-apparel of other persons. All woollen clothes should be discarded and removed from the room, in order that the conidia or spores may not become entangled in their fibres and aid in spreading the disease. As a further precaution, the heads of all other children in the house should be washed daily with a weak alcoholic solution of borax, and then thoroughly oiled with a solution composed of ten grains of thymol and one ounce of olive-oil, or with the fluid oleate of mercury. If this plan be perseveringly carried out, danger of the spread of the contagion will be reduced to a minimum.

Constitutional treatment is not generally necessary, but if the patient is debilitated, anæmic, or manifests evidences of scrofulous diathesis, I usually direct a mild aperient, to be followed by a course of chlorate of potassium or of some one of the chalybeates. The chloride and the iodide of iron are especially valuable. Cod-liver oil, malt, and the mineral acids, especially phosphoric acid and its compounds, are also of service in improving the nutrition and elevating the general tone of the system. The diet should be nourishing and easily assimilated, and consist chiefly of meat, milk, eggs, and fruit. Fresh air and outdoor exercise are also of prime importance. The rooms in which the patient lives should be cool and well ventilated. Care should be taken not to allow water to stand and evaporate in the room, or to be used on the scalp, as moisture and warmth, I repeat, contribute to the propagation of the fungus. I usually order the diseased area and the adjacent surface to be cleansed every day or two with the borax solution which has been previously mentioned. Little or no benefit can be obtained from cutting or shaving the hairs over the affected area, or from extracting the diseased hairs. It is true that by cutting or shaving the hairs the diseased surface can be fully exposed to view, but the irritation resulting from the use of the scissors or razor intensifies the itching and general discomfort, and indirectly assists in spreading the disease. Epilation is not only valueless but altogether impracticable, as the affected hairs are usually clasped so tightly by the swollen follicles, and by the ravages of the parasite rendered so brittle, that any attempt to extract them would only result in breaking them off short, either within the follicles or just above the surface. Vesication during the early stages of the disease is also a useless as well as a barbarous procedure. Instead of employing either epilation or vesication, I usually begin the treatment of a case by directing the diseased spots to be sponged every day or two with a weak alcoholic solution of thymol, borax, naphthol, or mercuric bichloride, and to be then thoroughly saturated with a fifty-per-cent. solution of boro-glyceride.

I cannot commend this latter solution too highly. I have in the early stages of ringworm of the scalp obtained many rapid cures from its use alone. I consider borax to be one of the most efficient antiseptic and antiparasitic agents. It also possesses mild astringent powers, and tends to allay the itching and irritation of the disease. The glycerine possesses great penetrating power, and carries the parasiticide deep into the follicles. It also possesses a great affinity for water, withdrawing it from the tissues, thus depriving the fungus of one of the elements most contributive to its existence. The boro-glyceride solution may be applied night and morning with a little sponge or mop, and should be well rubbed into the follicles with the tips of the fingers. It is destitute of any poisonous or irritating properties, and acts as a preventive of further contagion, as the parasite adheres to the glycerine, and is not cast off to be wafted about by the air. During all this period I do not attempt to epilate, as no benefit can be derived from simply breaking off the hairs. If, however, there is no amelioration of the disease within a short time after resorting to this treatment, or if the patches extend, or if the implicated hairs still break off or continue brittle, I employ a stronger and more decided antiparasitic remedy—the oleate of copper. This oleate, which I was the first to employ in the treatment of parasitic skin-affections, has been found to be the most valuable of antiparasitics. It does not produce any constitutional symptoms. Its stimulant and astringent qualities act favorably upon the cutaneous tissue, and possess the power of penetrating deeply into the follicles. It should be prepared with either four or nine parts of a fatty base.

I have employed the ointment of copper oleate in numbers of cases, with uniformly good results. Its use has been objected to by some writers because the clothes are liable to become stained with it. This objection does not hold good, however, when the remedy is properly employed. It should not be thickly smeared on the surface, like an ordinary ointment. Only a small quantity should be applied at a time, and it should be thoroughly rubbed into the affected area night and morning until all traces of the disease have disappeared, and until a new and healthy growth of hair is developed. No water, as I wish to insist, should be applied to the affected part throughout the course of the disease.

The treatment of chronic ringworm does not differ materially from that of the acute or recent form, but marked advantage may frequently be derived from employing the oleate of mercury alternately with the oleate of copper. That in this disease the parasite penetrates to the very bottom of the follicles and into the bulbs of the hairs is beyond doubt, and the only remedies that can be of service in such a case must be those capable of equal penetration. While I usually prefer the oleate of copper for this purpose, there are cases in which the oleate of mercury proves even more effective. I have seen it cure rapidly the most extensive and inveterate cases, cases that had existed for years, and had obstinately resisted all other remedies. Although I have used the remedy continuously in many cases, I have never seen salivation or any other of the constitutional effects of mercury follow its external employment. It may be applied in the same manner as the oleate of copper, the five-per-cent. ointment being preferable for very young children and the ten-per-cent. to thirty-per-cent. for older ones. It should be well rubbed into the diseased area, night and morning, until the parasite is completely extirpated. While the above methods will seldom fail, there are cases in which adopted remedies do not produce the expected effects, on account of the treatment not being properly carried out in detail, thus baffling all efforts. In these cases, and in these alone, the production of artificial kerion may be justified as a last resort; as one, however, that rarely if ever fails. As kerion has been described as Nature's effort to effect a cure, and it is associated with a loosening and falling out of the hairs, this condition is artificially produced with the view of accomplishing a similar result in cure.

The best application for the purpose is croton-oil. As, however, this remedy cannot be applied carelessly, or to a very large surface, it should be daintily applied with a camel's-hair pencil to small inveterate patches, and should be immediately followed by a poultice of flaxseed, or a warm-water dressing, well secured to the parts. This should be daily repeated, even if pustulation follow, until distinct infiltration and puffiness of the scalp is observed and the patches shall have assumed an aspect similar to that of true kerion. The scab is then to be removed, and the ointment of either the oleate of mercury or the oleate of copper applied to the exposed surface. After one spot is thus cured the others may be similarly treated, one at a time, until all traces of the disease shall have disappeared. It may take five or six applications to each spot to produce the desired condition, but it is sure to follow if the treatment be properly pursued. As this process is a severe measure, it should never be lightly attempted, and the parents of a child should be duly informed of its character, as otherwise they might become alarmed at the amount of the inflammation, and withdraw the patient from further treatment. The disseminated variety of the disease which Alder Smith speaks of should be managed in accordance with the preceding methods. The solution of boro-glyceride should also be continuously applied, and the hair should be closely examined with a lens for stumps and black dots. If either are found, they should be promptly treated by the method recommended by Alder Smith, that is, by the application of drops of croton-oil to produce pustulation, or by puncturing the follicles with a golden needle dipped in that oil. Treatment should be kept up in this manner until stumps and black dots are no longer visible, and the entire surface is covered with healthy, downy hair.

In the management of epidemics of ringworm occurring in schools and asylums, the most important measures are cleanliness and isolation. The heads of the healthy children should be frequently examined and washed daily with the solution previously mentioned. When finally all those affected have been cured, the sick-rooms should be whitewashed and painted, the floors washed with a solution of naphthol or mercuric bichloride, and the clothing, brushes, combs, etc., used by the patients should be burned, so as to destroy all vestiges of the parasite, and to prevent the disease from breaking out anew. When kerion occurs idiopathically all harsh or irritating measures must be avoided. The surface should be saturated with the boro-glyceride solution, and when the crusts are removed the ointment of the oleate of mercury should be well rubbed into the follicles of the affected area.

Prognosis.—The prognosis of tinea tonsurans is always favorable. The time required to effect a cure varies in accordance with the number and size of the diseased patches, the length of time that has elapsed since their first appearance, and the general condition of the patient. Some cases yield readily to the most simple measures, others persist for a long time notwithstanding all remedies; but even in the most obstinate cases the disease exhausts itself sooner or later, and spontaneously disappears. It rarely continues after puberty. Relapses are not of frequent occurrence, but if the smallest vestige of the parasite has escaped destruction it will soon redevelop luxuriantly over a large area.

TINEA SYCOSIS.

SYNONYMS.—Tinea trichophytina barbæ—Sycosis parasitica—Barber's itch—Parasitäre Bartfinne—Trycophytie sycosique.

Tinea sycosis is a contagious vegetable parasitic affection of the bearded portion of the face and neck, occurring therefore, of course, only in adult males. It is produced by the tricophyton, and is characterized by the formation of papules, tubercles, and pustules, and the occurrence of various morbid changes in the hairs of the affected area.

Symptoms.—Tinea sycosis is, as remarked, a disease of the male sex exclusively. It may occur at any time during adult life, but it is met with most frequently between the twentieth and the fortieth years of age. It usually begins as one or more small, round, erythematous, scaly patches situated on the cheeks or the chin. They vary from one fourth of an inch to half an inch or more in diameter. They are slightly elevated above the surrounding surface, and are the seat of more or less itching and burning sensation. They are occasionally surrounded by a ring of minute vesicles that rupture spontaneously in a day or two after their appearance. If the nature of the lesions be recognized and appropriate treatment adopted, the disease may be arrested at this stage. If they are neglected, they increase in size, and become distinctly swollen and indurated and more or less painful. The adjacent patches coalesce, forming one or more large, irregular, dark-red or purplish areas. Finally, as the fungus penetrates deeply into the follicles, the hairs become involved, and violent inflammation of the lower portion of the corium and subcutaneous connective tissue occurs as the consequence of the irritation by the parasite. Papules, tubercles, and pustules are developed around the orifices of the follicles. The papules are usually large in size, and frequently coalesce in tubercles. The tubercles are of various shapes and sizes. They are firm and slightly painful to the touch. They are deeply situated in the corium and subcutaneous connective tissue, but project more or less above the surface, to which they give a nodular appearance. The pustules are of varying sizes, and tend to rupture spontaneously, forming thick yellow crusts situated upon a reddened, excoriated, discharging surface. The hairs are not noticeably affected at first, but as the disease progresses they become dry, lustreless, and brittle, and become either twisted or broken off just above the orifices of the follicles. They finally become diseased throughout their entire length, or are loosened by the suppurative process, and drop out spontaneously. In severe cases large areas of the surface may in this manner become entirely denuded of hair. In mild cases the disease may manifest itself only by a reddened, desquamative condition of the epidermis, leaving the hairs unaffected. In still other cases, resembling the disseminated variety of tinea tonsurans, congested spots upon which the hairs are brittle and dull in appearance may be observed at several points upon the surface, but neither tubercles nor pustules are formed. Tinea sycosis may appear first on the neck or on the face. It may attack either or both sides of the face, and not infrequently it spreads over the entire submaxillary region. It seldom involves the upper lip or the upper portions of the cheeks. It is rarely accompanied by manifestations of the disease on other regions of the body. It may exceptionally terminate in spontaneous recovery, but as a general rule it assumes, if left untreated, a chronic character, and remains for years.

Diagnosis.—The only affections for which tinea sycosis might be mistaken are non-parasitic sycosis, pustular eczema, acne, favus, and the syphilides. In non-parasitic sycosis, however, the inflammation is superficial in character and characterized by the formation of pustules. In tinea sycosis the deeper layers of the skin as well as the follicles and papules are involved, and tubercles and nodules are formed in the affected area. Non-parasitic sycosis is usually accompanied by intense pain, itching, and burning, while in tinea sycosis these symptoms are seldom very marked. Non-parasitic sycosis frequently involves the upper lip, while tinea sycosis is rarely or never observed there. Finally, the hairs are not affected in the former disease, while in the latter they are twisted and broken off, or spontaneously expelled from their follicles. In doubtful cases the diagnosis can always be placed beyond question by a microscopic examination. The crusts of tinea sycosis sometimes resemble those of pustular eczema. Eczema, however, is accompanied by intense itching and burning. The crusts form rapidly upon an eroded, exudating surface, but there are no tubercles or nodules, the hairs are normal in appearance and texture, and remain firmly fixed in their follicles. When the papules and pustules of acne occur upon the hairy region of the face they might be mistaken for tinea sycosis, but the occurrence of similar lesions on other portions of the face, the absence of itching and desquamation, the absence also of tubercles and nodules, and the normal character of the hairs make the diagnosis easy. Various syphilitic pustular, papular, and tubercular manifestations may, when they appear upon the face, chin, or neck, simulate tinea sycosis, but in these the hairs are not involved, there is little or no itching, and microscopic examination will fail to reveal the presence of the tricophyton. The crusts that occasionally form in tinea sycosis may resemble those of favus, but in favus there is no excoriated, exudating surface, the hairs have not a nibbled appearance, and there are no tubercles or nodules deeply situated in the corium and subcutaneous connective tissue.

Pathology.—The pathological changes that occur in tinea sycosis are similar to those that occur in tinea tonsurans. The tricophtony fungus produces more or less irritation and hyperæmia of the surface, and then penetrates into the hair-follicles and between the upper layers of the epidermis. It also invades the follicular walls, producing intense irritation and inflammation, resulting in the formation of deep-seated papules, tubercles, and pustules. The parasite ramifies around and within the hair-shafts, producing more or less disorganization of their structure. It consists of mycelium and spores identical in arrangement and appearance with those which are found in tinea tonsurans.

Etiology.—Tinea sycosis is due to the tricophyton, and is propagated by contagion. It may be secondary to the ringworm peculiar to other portions of the body, or it may be contracted from children suffering from ringworm of the scalp. It is, however, usually acquired by using the shaving-brush or razor of an infected person. It may appear in the robust as well as in the weak, but it seems to require certain peculiar soil for its full development.

Treatment.—The treatment usually recommended in this affection consists in cutting or shaving the beard and epilating the diseased hairs, and then applying sodium hyposulphite, mercuric bichloride, sulphurous acid, boracic acid, and other antiparasitic remedies to the surface. I fail to see any advantage in either cutting the beard close or shaving, owing to the irritation produced by both of these measures. The remedies specified often act rapidly and effectively. One of the most efficient applications for this variety of the disease is a fifty-per-cent. solution of boro-glyceride in glycerine, employed in the same manner as in tinea tonsurans. A ten-per-cent. ointment of either the oleate of mercury or the oleate of copper will frequently be found serviceable in lessening infiltration and induration as well as in destroying the parasite. It should be applied night and morning until all traces of the disease shall have disappeared. To prevent the communication of the disease a ten-per-cent. solution of thymol in olive-oil or oil of sweet almonds should be perfumed and rubbed in over the entire bearded surface. If follicular suppuration or fungous granulations occur, a weak ointment of the oleate of nickel will be found invaluable in restoring healthy action. In obstinate cases, characterized by exuberant granulations and continual destruction of the hairs, the surface should be brushed over with an infusion of jequirity. This will induce violent inflammation and profuse suppuration, but it will finally result in a cure. Dr. Cavafy's boracic acid lotion is also an effective application in both recent and chronic cases. Its formula is :

℞ Acidi borici.......................... ʒ iv.
Ætheris sulph.................... f ℥ v.
Spiritus vini rect........... q. s. ad f ℥ xx.
M. Ft. lot. Sig.: Apply to the diseased surface three or four times daily.

Prognosis.—The prognosis is always favorable, but the time requisite to effect a cure varies considerably. In some cases the most simple measures speedily suffice, in others months may elapse before the disease is eradicated. Relapses will occur unless the parasite is thoroughly destroyed.

TINEA CIRCINATA.

Synonyms.—Herpes circinatus—Ringworm of the body—Tricophytic circinée.

Tinea circinata is a contagious, vegetable parasitic cutaneous disease, produced by the tricophyton, and characterized by the formation of one or more round or oval erythematous, scaly patches upon the general surface of the body.

Symptoms.—This form of ringworm differs from the preceding varieties only by its location. It is situated chiefly in the superficial layers of the epidermis. It occurs upon portions of the body that are either destitute of hair or scantily provided with lanugo. If it spreads to the scalp or other hairy regions of the body, it assumes the form of tinea tonsurans. It usually begins as a small, round, reddish spot, slightly elevated above the surrounding surface, presenting a branny or scurfy appearance. It may or may not be accompanied by itching. It rapidly increases in size by peripheral growth, attaining a diameter of half an inch or more in a few days. Its margins are distinctly elevated, and in some cases surrounded by a ring of minute papules, vesicles, or papulo-vesicles, which terminate in desquamation. Owing to the tendency manifested by the disease to disappear at the centre while it extends at the periphery, the lesions soon assume the characteristic annular form. When a large ring is formed in this manner, the disease may reappear again in the centre, and by pursuing the same course terminate by the formation of a series of concentric rings. When two or more patches are present upon the same region of the surface, they frequently coalesce so as to form large, irregular, reddish, desquamative areas. When the peripheries of two or more rings meet, a variety of semicircular serpentine, erythematous, scaly lesions are formed. The lesions are accompanied by slight itching and tingling sensations. In some rare cases the itching is so severe and productive of so much scratching that a mild or severe eczema is superadded to the original disease. Tinea circinata varies in intensity and duration in accordance with the amount and activity of the fungus, and with the condition of the epidermis of the patient. It may pursue a mild course and disappear spontaneously in a few weeks, or it may, if left untreated, become chronic in character and remain for an indefinite period. When it is contracted from the lower animals it is especially obstinate. In chronic ringworm of the body the lesions consist of one or more isolated spots or patches, which are reddish or brownish in color and covered with small scales. They are irregular in shape and variable in size, and as a general rule are not accompanied by any subjective symptoms. Their color disappears upon pressure, but returns as soon as the pressure is removed. They remain either stationary or increase in size very slowly. Occasionally they become markedly diminished in size, or apparently disappear during the summer, appearing again in the winter.

Tinea circinata may appear upon any portion of the body, but it is observed most frequently upon the face, neck, and the dorsal surfaces of the hands and arms. It may be occasionally observed beneath the mammæ or in the axillæ, between the nates, around the genitalia, and upon the inner surfaces of the thighs. When it appears upon the last-named region it is known as tinea circinata cruris. This is the affection described by Hebra as "eczema marginatum." It is characterized by the development of a number of small, reddish, elevated spots situated in the upper, inner portions of one or both thighs or on the scrotum. Owing to the heat and friction to which they are subjected, their surfaces become eroded and covered with crusts. They rapidly increase in size, and coalesce so as to form large, irregular, semicircular or serpentine lesions, that involve the entire genito-crural region, and even extend over the lower portion of the abdomen. Their margins are sharply defined and distinctly elevated above the adjacent normal skin. They are accompanied by intense itching, which induces excessive scratching, resulting in the development of a more or less acute eczematous inflammation. Vesicles and pustules are not infrequently developed around the margins of the patches. In tinea tricophytina unguium, or onychomycosis, the parasite penetrates the nail-substance, producing various hypertrophic and degenerative changes. The nails become dry, opaque, and brittle, more or less distorted and thickened, and manifest a tendency to fissure or to peel off in layers. This variety of the disease is usually secondary to ringworm of other parts of the body. It may, however, occur primarily in adults as a result of attending to or caring for children suffering from tinea tonsurans. It is a rare form of the disease, however, and is peculiarly obstinate to treatment.

Tinea imbricata, Chinese ringworm, India ringworm, Burmese ringworm, and other terms, are those used to designate certain forms of tinea circinata that occur in various parts of the East. They are characterized by profuse desquamation and extensive inflammation of the surface, are frequently obstinate to treatment, and usually tend to pursue a chronic course.

Diagnosis.—The diagnosis of tinea circinata is usually easy. Typical annular, scaly, erythematous lesions cannot be mistaken for anything else. Isolated spots or patches of the disease might, it is true, be confounded with eczema, seborrhœa, syphilis, or psoriasis. In eczema, however, the eruption is not sharply defined, but gradually fades into the surrounding skin. The surface in eczema is hot, painful, and besides being, as in tinea circinata, the seat of intense itching, with more or less exudation, has vesicles, papules, or pustules at all points on it, and not upon the periphery only, as in ringworm. Finally, the patches of eczema are not circular but are irregular in form, and never manifest any tendency to heal in the centre. In seborrhœa of the body the patches often assume an annular form, and are more or less elevated above the surface and covered with fine scales. The patches are normal in color, however, the scales greasy, the follicles perceptibly dilated, and no vesicles or papules are developed at the periphery. The disseminated form of psoriasis may present some resemblance to tinea circinata, but the history and course of the diseases are so widely different that no error should be made in their respective diagnoses. Favus of the body can readily be distinguished from tinea circinata by the presence of its characteristic cup-shaped yellow crusts with their peculiar mousy odor. The erythematous and papular cutaneous manifestations of syphilis might be confounded with tinea circinata, but the number and wide diffusion of the lesions, their slow peripheral growth, and the absence of itching, should exclude ringworm as a factor in their development, while the history of infection and the presence of other symptoms of syphilis should make the diagnosis certain. A microscopic examination of a portion of the epidermis ought to be made in all doubtful cases, in order to determine the presence or absence of the parasite. If from mere appearance a case of tinea tricophitina cruris might tend to be mistaken for a case of intertrigo or ordinary eczema, one has only to recollect that the elevated margins and the annular or serpentine form of the lesions of the former, and the intense itching by which they are characterized, are characteristic of the parasitic disease. The presence of the tricophyton, if ascertained by microscopical examination, will place the diagnosis beyond doubt.

Pathology.—The lesions of tinea circinata are due to the presence of the tricophyton fungus. The fungus consists of spores and mycelium that ramify over the surface and insinuate themselves between the superficial layers of the epidermis, producing more or less irritation, resulting finally in desquamation and the formation of erythematous or hyperæmic areas of various shapes and sizes. When the irritation becomes excessive, the stage of congestion passes into that of inflammation, vesicles and papules are formed, and there is more or less exudation. In severe cases, or in cases occurring in portions of the body that are subjected to friction or pressure, the irritation and itching may be so severe as to induce violent scratching, which intensifies the suffering, and frequently develops a violent eczema as a complication of the original disease.

Etiology.—Tinea circinata is derived, as already noted, from the tricophyton, and is propagated by contagion. It occurs in both sexes and at all ages, but it is more frequently observed in children than in adults. It is of frequent occurrence in the lower animals, and may be contracted from them by man. It may attack the robust as well as the weak, but I believe that a peculiar condition of the epidermis is necessary to its development.

Treatment.—Constitutional remedies are unnecessary in tinea circinata, except in anæmic, debilitated, or scrofulous persons, to whom either chlorate of potassium, the tincture of the chloride of iron, iodide of iron, or cod-liver oil, may be given with decided benefit. The indications for local treatment are to use agents that will either destroy the parasite or else indirectly eliminate it from the surface by producing desquamation of the superficial layers of the epidermis in which it is situated. One of the very best local applications is a lotion of two or three grains of mercuric bichloride dissolved in equal parts of alcohol and cologne-water, and painted over the diseased area every night and morning. The boracic-acid lotion, recommended by Dr. Cavafy, is an effective and elegant preparation. Alcoholic solutions of carbolic acid, a drachm to the fluid ounce of alcohol, or of salicylic acid, a drachm to the ounce, or of thymol, thirty grains to the ounce, may also be used with benefit. Strong acetic acid, or pure tincture of iodine, will frequently prove curative after a few applications. Among other effective lotions may be mentioned sulphurous acid, one drachm to the fluid ounce of alcohol; hyposulphite of sodium, eighty grains to the ounce; naphthol, forty grains to the ounce; and creasote, one drachm to the ounce. Of chrysarobin, seven grains dissolved in an ounce of chloroform, as recommended by Alder Smith, will be found remarkably effective. Ointments are sometimes of more service than lotions. The ointment of the acid nitrate of mercury, combined with an equal quantity of lard, will be found especially valuable. Among other valuable ointments are those composed of pyrogallic acid, fifteen grains to the ounce of fatty matter; carbolic acid, twenty to thirty grains to the ounce; mercuric bichloride, three grains to the ounce; oil of cade, one drachm to the ounce; salicylic acid, forty grains to the ounce; thymol, twenty grains to the ounce; and resorcin, twenty grains to the ounce. The various sulphur preparations may also be used with benefit. Chrysarobin, in the form of an ointment or a lotion, twenty grains to the ounce, is effective, but it stains the surface, and if accidentally brought into contact with the conjunctivæ will produce violent inflammation. Wilkinson's ointment, Coster's paste, and alcoholic solutions of sapo viridis, have long been recognized as potent applications. In my experience, however, no other remedy is so effective as the ointment of the oleate of copper, used either alone or in alternation with the ointment of the oleate of mercury. In mild cases any of the ointments or lotions previously mentioned will be sufficient to effect a cure in a short time. Nothing can be gained in obstinate cases by employing in quick succession a number of different remedies. If the disease manifest any tendency to linger, the ointment of the oleate of copper should be applied at once. It may be well in some cases to commence with the five-per-cent. ointment, and then increase its strength as may be necessary. In chronic cases the ointment of the oleate of mercury should be used in alternation with it. If eczematous complications manifest themselves, the ointment of the oleate of zinc, or of the oleate of bismuth combined with oil of cade, may be employed with advantage.

The treatment of tinea tricophytina cruris is essentially the same as that of the other varieties of ringworm, and consists in the application of thymol, carbolic acid, mercuric bichloride, sulphur, iodine, mercury, copper, and other antiparasitic agents. It must not be forgotten, however, that in this form of the disease there is, in addition to parasitic irritation, an aggravated hyperæmic condition of the surface produced by moisture and friction, and that soothing and astringent remedies are as indispensable as antiparasitics. In several cases that came under my observation immediate relief and rapid cure were obtained through the application night and morning of the following ointment:

℞	Acidi carbolici	gr. v.
	Cupri oleatis	gr. x.
	Ungt. zinci oxidi benz.	℥ j.

M. Ft. ungt.

The affected surfaces were also dusted over with a powder composed of equal parts of pulverized starch and the oleate of zinc, in order to prevent chafing and to produce a slight astringent action on the cutaneous glands and vessels. The severe tropical forms of the affection can be most effectually treated by the application of a strong ointment of oleate of copper, the oleate of mercury, or of an ointment of chrysarobin, of thirty grains to the ounce. The best treatment for ringworm of the nails consists in removing as much as possible of the diseased portion with the knife, and keeping the remainder covered with a ten- or twenty-per-cent. ointment of the oleate of mercury until the entire diseased area shall have exfoliated and been succeeded by a new and healthy growth. The ointment of the oleate of copper or of the oleate of tin may be used alternately with the oleate of mercury.

Prognosis.—The prognosis of tinea circinata is always favorable. Many cases terminate spontaneously, others prove more or less obstinate to treatment, but a cure is certain even in those most obstinate, if the treatment be judiciously directed and persistently followed. Tinea tricophytina cruris and tinea tricophytina unguium are the most difficult varieties of the disease to overcome, but they are less intractable than they were formerly supposed to be. Relapses may occur if the patient is again exposed to contagion.

FORMULARY.

INTERNAL.

ACNE.

Take of Pill of carbonate of iron	½ drachm.
Extract of ignatia	2 grains.
Arsenious acid	1 grain.

Mix and divide into twenty pills.

Dose : 1 pill after meals.

ACNE.

Take of Liquid pepsin	2 drachms.
Tincture of nux vomica	1 drachm.
Dilute hydrochloric acid	2 drachms.
Glycerin	2 ounces.
Mint-water	1 ounce.

Mix. Dose : 1 teaspoonful after meals.

ACNE.

Take of Bromide of sodium	4 drachms.
Sirup of wild cherry	3 ounces.

Mix. Dose : 1 teaspoonful in water every three hours.

ACNE.

Take of Sublimed sulphur	½ ounce.
Carbonate of magnesium	6 drachms.

Mix and divide into twelve powders.

Dose : 1 or 2 powders in sirup every morning and evening.

ACNE.

Take of Sirup of lactate of iron	3 ounces.
Chlorate of potassium	2 drachms.

Mix. Dose : 1 teaspoonful four times a day.

Efficacious for pustular acne.

ACNE.

Take of Glycerin	3 ounces.
Tincture of calamus	2 drachms.
Cinnamon-water	14 drachms.

Mix. Dose: 2 teaspoonfuls three or four times a day. Useful in acne punctata, or black-head.

ACNE.

Take of Fluid extract of hydrastis	2 drachms.
Glycerin	3 ounces.

Mix. Dose: 1 teaspoonful before meals.

ACNE.

Take of Sulphate of iron	15 grains.
Extract of dandelion	20 grains.

Mix and divide into twenty pills.
Dose: 1 pill after meals.

ACNE.

Take of Sirup of the lactophosphate of lime	3 ounces.

Dose: 1 teaspoonful in water three times a day.

ACNE.

Take of Sirup of the hypophosphites	5 ounces.
Aloin	2 grains.

Mix. Dose: 1 teaspoonful three times a day.

ALOPECIA.

Take of Sulphurous acid	2 ounces.
Sirup of orange-flowers	2 ounces.

Mix. Dose: 1 to 2 teaspoonfuls in water three times a day.

ALOPECIA.

Take of Tincture of ignatia	2 drachms.
Solution of arsenite of potassium	2 drachms.

Mix. Dose: 5 to 10 drops in water two or three times a day.

ALOPECIA.

Take of Corrosive sublimate	1 grain.
Glycerin	3 ounces.

Mix. Dose: 1 teaspoonful four times a day.

ALOPECIA.

Take of Tincture of jaborandi	½ ounce.

Dose : 5 to 30 drops in water four times a day.

ANIDROSIS.

(A decreased or complete cessation of the secretion of sweat.)

Take of Infusion of jaborandi	3 ounces.
Spirit of nitrous ether	3 ounces.

Mix. Dose : 1 to 2 tablespoonfuls every three or four hours.

ANIDROSIS.

Take of Compound sirup of sarsaparilla	3 ounces.
Tincture of stillingia	2 ounces.
Spirit of nitrous ether	2 ounces.

Mix. Dose : 1 tablespoonful three or four times a day.

ANTHRAX.

(Malignant pustule.)

Take of Compound tincture of cinchona	3 ounces.
Solution of acetate of ammonium	3 ounces.
Brandy	3 ounces.

Mix. Dose : 1 tablespoonful in water every two or three hours.

ANTHRAX.

Take of Creasote	2 drops.
Hydrate of chloral	2 drachms.
Sirup of ginger	3 ounces.

Mix. Dose : ½ to 1 teaspoonful in water every three or four hours.

BITES AND STINGS OF INSECTS.

Take of Oil of sassafras	2 drachms.

Dose : 2 to 10 drops on sugar or in sirup every two to four hours.

CARBUNCULUS—CARBUNCLE.

Take of Carbonate of ammonium	2½ drachms.
Fluid extract of coffee	½ ounce.
Sirup	4 ounces.

Dose : 1 or 2 teaspoonfuls every two or three hours.

CARBUNCULUS—CARBUNCLE.

Take of Antipyrine	100 grains.

Make into 20 powders.

Dose : 1 powder in water every one or two hours.

CARBUNCULUS—CARBUNCLE.

Take of Sulphate of quinine	30 grains.
Sulphide of calcium	10 grains.

Mix and divide into 20 pills.
Dose : 1 or 2 pills every three or four hours.

CARBUNCULUS—CARBUNCLE.

Take of Tincture of chloride of iron	1½ ounce.
Glycerin	1½ ounce.
Sulphate of quinine	1 drachm.

Mix. Dose : 1 teaspoonful in water every two or three hours.

COMEDO—SEBACEOUS PLUG OR GRUB.

Take of Dialyzed iron	1 ounce.
Glycerin	2 ounces.
Castor-oil	2 ounces.

Mix. Dose : 1 to 2 teaspoonfuls night and morning.

COMEDO—SEBACEOUS PLUG OR GRUB.

Take of Cod-liver oil	½ ounce.
Sulphuric ether	20 drops.

Mix. 1 dose : To be taken three times a day.

CHANCROID.

Take of Sirup of iodide of iron	1 ounce.
Chlorate of potassium	2½ drachms.
Glycerin	2 ounces.
Water	1 ounce.

Mix. Dose : 1 to 2 teaspoonfuls every two or three hours.

CHANCROID.

Take of Tartrate of iron and potassium	4 drachms.
Aromatic spirit of ammonia	2 drachms.
Water	3 ounces.

Mix. Dose : 1 teaspoonful in water every three hours.

CHANCROID.

Take of Sulphate of quinine	30 grains.
Compound powder of ipecacuanha	30 grains.

Mix and divide into 30 pills.
Dose : 2 pills every two or three hours.

DERMATALGIA—NEURALGIA OF THE SKIN.

Take of Fluid extract of gelsemium	2 drachms.

Dose: 2 to 5 drops in water every three or four hours.

DERMATALGIA—NEURALGIA OF THE SKIN.

Take of Croton chloral hydrate	36 grains.
Glycerite of tragacanth, a sufficient quantity.	

Mix and divide into 12 pills.
Dose: 1 pill every two or three hours.

ECZEMA, ACUTE.

Take of Tincture of aconite root	2 drachms.
Water	6 drachms.

Mix. Dose: 4 to 8 drops every hour or two.

ECZEMA, ACUTE.

Take of Tartar emetic	½ grain.
Solution of acetate of ammonium	6 ounces.

Mix. Dose: 1 tablespoonful in water every hour or two.

ECZEMA, ACUTE.

Take of Subnitrate of bismuth	2 drachms.
Fluid extract of gelsemium	50 drops.
Powdered nutmeg	40 grains.
Sirup of ginger	3 ounces.

Mix. Dose: 1 or 2 teaspoonfuls in water every hour or two.

ECZEMA, ACUTE.

Take of Oil of gaultheria	½ ounce.
Carbonate of magnesium	8 drachms.
Water	10 ounces.

Mix. Dose: ½ to 2 drachms in water three times a day.

ECZEMA, ACUTE.

Take of Carbonate of magnesium	½ ounce.
Aromatic spirit of ammonia	1 drachm.
Tincture of rhubarb	½ ounce.
Peppermint-water	4 ounces.
Sirup of lemon	2 ounces.

Mix. Dose: 1 tablespoonful three or four times a day.

ECZEMA, ACUTE.

Take of Sulphate of morphine	1 grain.
Tincture of gelsemium	1 drachm.
Bicarbonate of sodium	½ ounce.
Camphor-water	2 ounces.
Spirit of nitrous ether	2½ ounces.

Mix. Dose : 1 or 2 teaspoonfuls every three or four hours.

ECZEMA, ACUTE.

Take of Sulphate of magnesium	½ ounce.
Tincture of aconite root	12 drops.
Sirup of senna	1 ounce.
Water	3 ounces.

Mix. Dose : 1 dessertspoonful every four hours.

ECZEMA, CHRONIC.

Take of Arsenious acid	1 grain.
Extract of belladonna	5 grains.
Extract of calamus	2 scruples.

Mix and divide into 20 pills.
Dose : 1 pill three times a day.

ECZEMA, CHRONIC.

Take of Icthyol (sulpho-icthyolate of sodium) 2 drachms.
Dose : 5 to 20 drops in water two or three times a day.

ECZEMA, CHRONIC.

Take of Icthyol (sulpho-icthyolate of sodium) 1 scruple.
Divide into 40 pills.
Dose : 1 to 10 pills a day.

ECZEMA, CHRONIC.

Take of Phosphide of zinc	1 grain.
Extract of Indian hemp	3 grains.
Sulphate of quinine	1 drachm.

Mix and divide into 30 pills.
Dose : 1 pill after each meal.

ECZEMA, CHRONIC.

Take of Venice turpentine	5 grains.
Extract of belladonna	5 grains.
Extract of gentian	2 scruples.

Mix and divide into 20 pills.
Dose : 4 to 6 pills a day.

ECZEMA, CHRONIC.

Take of Tartar emetic	2 grains.
Sulphate of quinine	2 scruples.

Mix and divide into 20 pills.
Dose: 1 pill four times a day.

ECZEMA, INFANTILE.

Take of Sirup of iodide of iron	1 ounce.
Fluid extract of malt	5 ounces.

Mix. Dose: ½ to 2 teaspoonfuls three times a day.

ECZEMA, INFANTILE.

Take of Calomel	5 grains.
Sugar	1 scruple.

Mix and divide into 5 powders.

Dose: 1 powder every second or third day, followed with one-half teaspoonful of carbonate of magnesium or a teaspoonful of castor-oil.

ECZEMA GENITALIUM—ECZEMA OF THE GENITAL ORGANS.

Take of Tincture of Hoang-Nan	½ ounce.

Dose: 3 to 30 drops in water three or four times a day.

ECZEMA VULVÆ OR VAGINÆ—ECZEMA OF THE VULVA OR VAGINA.

Take of Extract of belladonna	5 grains.
Arsenious acid	5 grains.
Extract of opium	2 grains.
Sulphate of quinine	1 scruple.
Oil of theobroma	sufficient.

Mix and divide into 20 suppositories.
Dose: Insert 1 in the vagina four times a day.

ECZEMA ANI—ECZEMA OF THE ANUS.

Take of Arsenious acid	5 grains.
Extract of hyoscyamus	4 grains.
Carbonate of iron	1 drachm.

Mix and divide into 20 suppositories.
Dose: Insert 1 four times a day.

ECZEMA SCROTI—ECZEMA OF THE SCROTUM.

Take of Tincture of Hoang-Nan	3 drachms.

Dose: 2 to 20 drops in water every three or four hours.

EPITHELIOMA—EPITHELIAL CANCER—SARCOMA—CARCINOMA.

Take of Powdered bloodroot	10 grains.
Extract of conium	10 grains.
Extract of hyoscyamus	4 grains.

Mix and divide into 30 pills.
Dose : 1 pill three times a day.

EPITHELIOMA—EPITHELIAL CANCER—SARCOMA—CARCINOMA.

Take of Arsenious acid	1 grain.
Extract of belladonna	5 grains.
Sulphate of quinine	40 grains.

Mix and divide into 20 pills.
Dose : 1 pill three times a day.

EPITHELIOMA—EPITHELIAL CANCER—SARCOMA—CARCINOMA.

Take of Arsenite of sodium	1 grain.
Iodide of iron	40 grains.

Mix and divide into 20 pills.
Dose : 1 pill three times a day.

EPITHELIOMA—EPITHELIAL CANCER—SARCOMA—CARCINOMA.

Take of Sulphate of morphine	½ grain.
Bromide of sodium	3 drachms.
Sirup of lactucarium	5 ounces.

Mix. Dose : 1 tablespoonful every two or three hours until relieved of pain.

ERYSIPELAS.

Take of Tartar emetic	1 grain.
Camphor-water	3 ounces.
Spirit of nitrous ether	3 ounces.

Mix. Dose : 1 tablespoonful in water every one or two hours.

ERYSIPELAS.

Take of Hydrochlorate of pilocarpine	1 grain.
Tincture of aconite-root	24 drops.
Water	3 ounces.

Mix. Dose : 1 teaspoonful every three or four hours.

ERYSIPELAS.

Take of Tincture of chloride of iron	2 ounces.
Glycerin	2 ounces.

Mix. Dose : 1 to 2 teaspoonfuls in a wineglassful of water every two or three hours.

ERYTHEMA.

Take of Sulphate of iron	24 grains.
Sulphate of magnesium	5 drachms.
Dilute sulphuric acid	½ drachm.
Sirup of senna	2 ounces.
Water	6 ounces.

Mix. Dose : 1 tablespoonful in water night and morning.

ERYTHEMA.

Take of Infusion of quassia	4 ounces.
Solution of citrate of potassium	2 ounces.

Mix. Dose : 1 to 2 tablespoonfuls three or four times a day.

FURUNCULUS—BOIL.

Take of Chlorate of potassium	5 drachms.
Sirup of lactate of iron	4 ounces.

Mix. Dose : 2 teaspoonfuls in water three or four times a day.

FURUNCULUS—BOIL.

Take of Sulphide of calcium	5 grains.
Extract of belladonna	2 grains.
Extract of gentian	35 grains.

Mix and divide into 20 pills.
Dose : 1 pill every two or three hours.

FURUNCULUS—BOIL.

Take of Citrate of iron and quinine	2 drachms.
Dilute sulphuric acid	1 drachm.
Sherry wine	5 ounces.

Mix. Dose : 2 teaspoonfuls three or four times a day.

FURUNCULUS—BOIL.

Take of Compound sirup of phosphates	5 ounces.
Aloin	2 grains.

Mix. Dose : 2 teaspoonfuls three times a day.

HERPES.

Take of Arsenite of iron	1 grain.
Extract of cinchona	1 drachm.

Mix and divide into 30 pills.
Dose : 3 or 4 pills a day.

HERPES.

Take of Phosphide of zinc	½ grain.
Sulphate of quinine	2 scruples.

Mix and divide into 40 pills.
Dose : 1 pill three or four times a day.

HERPES ZOSTER—SHINGLES.

Take of Bromide of sodium	200 grains.
Hydrate of chloral	100 grains.
Sirup of tolu	5 ounces.

Mix. Dose : 1 tablespoonful in water every hour until relieved.

HERPES ZOSTER—SHINGLES.

Take of Tincture of aconite root	24 drops.
Sulphate of morphine	1 grain.
Solution of citrate of potassium	2 ounces.
Sirup of orange-flower water	1 ounce.

Mix. Dose : 1 teaspoonful every one or two hours.

HYPERIDROSIS—EXCESSIVE PERSPIRATION.

Taxe of Oxide of zinc	4 grains.
Extract of calamus	24 grains.

Mix and divide into 16 pills.
Dose : 1 pill three or four times a day.

HYPERIDROSIS—EXCESSIVE PERSPIRATION.

Take of Tincture of belladonna	50 drops.
Fluid extract of triticum	3 ounces.

Mix. Dose : 1 teaspoonful three times a day.

HYPERIDROSIS—EXCESSIVE PERSPIRATION.

Take of Ergotin	10 grains.
Dried sulphate of iron	20 grains.

Mix and divide into 20 pills.
Dose : 2 to 4 pills a day.

ICHTHYOSIS.

Take of Fluid extract of jaborandi	2 drachms.
Spirit of nitrous ether	2 ounces.
Solution of acetate of ammonium	2 ounces.

Mix. Dose : 2 teaspoonfuls in water night and morning.

LEPROSY.

Take of Chaulmoogra oil	1 ounce.

Dose : 10 to 30 drops three times a day.

LEPROSY.

Take of Nitrate of silver	3 grains.
Sirup of gum arabic	3 ounces.

Mix. Dose : 1 teaspoonful in a wineglassful of water three times a day.

LEPROSY.

Take of Iodide of potassium	3 drachms.
Glycerin	2 ounces.
Water	2 ounces.

Mix. Dose : 2 teaspoonfuls four times a day.

LUPUS ERYTHEMATOSUS.

Take of Cod-liver oil	4 ounces.
Sirup of lactophosphate of lime	2 ounces.

Mix. Dose : 2 teaspoonfuls three times a day.

LUPUS ERYTHEMATOSUS.

Take of Chlorate of potassium	2 drachms.
Compound tincture of cinchona	6 ounces.

Mix. Dose : 1 dessertspoonful in water three or four times a day.

LUPUS VULGARIS.

Take of Sulphate of quinine	20 grains.
Carbonate of iron	20 grains.
Calomel	2 grains.

Mix and divide into 20 pills.
Dose : 1 pill three times a day.

LUPUS VULGARIS.

Take of Iodide of potassium	3 drachms.
Compound sirup of phosphates	5 ounces.

Mix. Dose : 2 teaspoonfuls in water three times a day.

PARÆSTHESIA, OR PRURITUS—ITCHING OF THE SKIN.

Take of Bromide of sodium	8 drachms.
Tincture of gelsemium	½ drachm.
Sirup of orange-flowers	4 ounces.

Mix. Dose : 2 teaspoonfuls in water every two or three hours.

PARÆSTHESIA, OR PRURITUS—ITCHING OF THE SKIN.

Take of Tincture of belladonna	3 drachms.

Dose: 5 to 15 drops in water every three or four hours.

PARÆSTHESIA, OR PRURITUS—ITCHING OF THE SKIN.

Take of Hydrate of chloral	2 drachms.
Sirup of wild cherry	1 ounce.
Sirup of tolu	2 ounces.

Mix. Dose: 1 or 2 teaspoonfuls in water every two or three hours.

PEMPHIGUS.

Take of Nitrate of silver	2 grains.
Powdered opium	4 grains.
Extract of belladonna	2 grains.

Mix and divide into 16 pills.
Dose: 1 pill every four hours.

PEMPHIGUS.

Take of Arsenious acid	1 grain.
Black pepper	10 grains.
Sulphate of quinine	10 grains.

Mix and divide into 20 pills.
Dose: 1 pill three times a day.

PEMPHIGUS.

Take of Iodide of potassium	3 drachms.
Compound tincture of cardamom	2 ounces.
Compound tincture of gentian	2 ounces.

Mix. Dose: 1 teaspoonful every three or four hours.

PSORIASIS.

Take of Fluid extract of dandelion	2 ounces.
Spirit of nitrous ether	3 ounces.
Aloin	2 grains.

Mix. Dose: 2 teaspoonfuls in water four times a day.

PSORIASIS.

Take of Acetate of potassium	2 drachms.
Infusion of digitalis	4 ounces.
Infusion of jaborandi	6 ounces.
Fluid extract of cascara sagrada	2 drachms.

Mix. Dose: 1 tablespoonful every three hours.

PSORIASIS.

Take of Salicylic acid	2 drachms.
Bicarbonate of sodium	40 grains.
Compound tincture of cardamom	1 ounce.
Water	2 ounces.

Mix. Dose: 1 teaspoonful in water every three hours.

PSORIASIS.

Take of Arsenite of sodium	1 grain.
Podophyllotoxin	2 grains.
Extract of calamus	40 grains.

Mix and divide into 40 pills.
Dose: 2 to 4 pills a day.

PSORIASIS.

Take of Acetic extract of colchicum	10 grains.
Arsenious acid	1 grain.
Sulphate of quinine	30 grains.
Extract of leptandra	10 grains.

Mix and divide into 30 pills.
Dose: 1 pill three times a day.

PSORIASIS.

Take of Infusion of digitalis	2 ounces.
Solution of acetate of ammonium	2 ounces.

Mix. Dose: 2 teaspoonfuls in water every two or three hours.

PURPURA.

Take of Sulphate of quinine	40 grains.
Venice turpentine	5 grains.

Mix and divide into 20 pills.
Dose: 1 pill four times a day.

PURPURA.

Take of Dried sulphate of iron	16 grains.
Extract of Indian hemp	8 grains.

Mix and divide into 16 pills.
Dose: 2 to 3 pills a day.

PURPURA.

Take of Tincture of chloride of iron	2 ounces.
Fluid extract of ergot	2 ounces.

Mix. Dose: 30 drops to 1 teaspoonful in a wineglassful of water every three hours.

PURPURA.

Take of Chlorate of potassium	5 drachms.
Tincture of belladonna	72 drops.
Sirup of wild cherry	3 ounces.

Mix. Dose: 1 teaspoonful in water three or four times a day.

ROSACEA—ACNE ROSACEA.

Take of Ergotin	20 grains.
Extract of nux vomica.	2 grains.

Mix and divide into 20 pills.
Dose: 1 pill every four hours.

ROSACEA—ACNE ROSACEA.

Take of Fluid extract of witch-hazel	1 ounce.

Dose: 5 to 10 drops in water every three or four hours.

ROSACEA—ACNE ROSACEA.

Take of Tannic acid	12 grains.
Extract of dandelion	12 grains.
Mucilage	sufficient.

Mix and divide into 12 pills.
Dose: 2 pills three or four times a day.

RUBEOLA—MEASLES.

Take of Tincture of veratrum viride	24 drops.
Camphor-water	1 ounce.
Solution of acetate of ammonium	2 ounces.

Mix. Dose: 1 teaspoonful in water every three hours.

RUBEOLA—MEASLES.

Take of Dilute hydrochloric acid	1 drachm.
Compound tincture of cardamom	1 ounce.
Simple sirup	4 ounces.

Mix. Dose: 1 or 2 teaspoonfuls in water every three hours.

RUBEOLA—MEASLES.

Take of Sirup of tolu	1 ounce.
Muriate of ammonium	80 grains.
Sirup of ipecacuanha	½ ounce.
Compound sirup of squill	1 ounce.
Sirup of wild cherry	1½ ounce.

Mix. Dose: 1 to 2 teaspoonfuls every three or four hours.

SCARLATINA—SCARLET FEVER.

Take of Infusion of digitalis	5 ounces.

Dose : ½ to 1 teaspoonful every three or four hours.

SCARLATINA—SCARLET FEVER.

Take of Tincture of aconite root	20 drops.
Neutral mixture	5 ounces.

Mix. Dose : 2 teaspoonfuls every two hours.

SCARLATINA—SCARLET FEVER.

Take of Chlorate of potassium	1 drachm.
Tincture of belladonna	24 drops.
Sirup of lemon	3 ounces.

Mix. Dose : 1 teaspoonful every two or three hours.

SCARLATINA—SCARLET FEVER.

Take of Chlorate of potassium	2 drachms.
Tincture of chloride of iron	2 drachms.
Glycerin	1 ounce.
Water	4 ounces.

Mix. Dose : 1 to 2 teaspoonfuls in water every two or three hours.

SCROFULODERMA.

Take of Cod-liver oil	4 ounces.
Lime-water	2 ounces.
Wine of iron	2 ounces.

Mix. Dose : 2 teaspoonfuls after meals.

SCROFULODERMA.

Take of Sirup of lactophosphate of lime	2 ounces.
Cod-liver oil	4 ounces.
Oil of cinnamon	3 drops.

Mix. Dose : 2 teaspoonfuls after meals.

SCROFULODERMA.

Take of Diluted phosphoric acid	½ ounce.
Glycerin	3 ounces.
Sirup of orange-peel	1 ounce.

Mix. Dose : 1 teaspoonful in a wineglassful of water after meals.

SCROFULODERMA.

Take of Chlorate of potassium	2 drachms.
Glycerin	1 ounce.
Water	2 ounces.

Mix. Dose : 1 teaspoonful three or four times a day.

SEBORRHŒA SICCA—DRY OR SCALY SEBORRHŒA.

Take of Arsenite of iron	1 grain.
Sulphate of quinine	32 grains.

Mix and divide into 16 pills.
Dose : 1 pill three times a day.

SEBORRHŒA SICCA—DRY OR SCALY SEBORRHŒA.

Take of Sirup of hydriodic acid	2 ounces.
Glycerin	2 ounces.

Mix. Dose : 1 small half-teaspoonful in water three times a day.

SEBORRHŒA SICCA—DRY OR SCALY SEBORRHŒA.

Take of Sirup of iodide of iron	2 ounces.
Glycerin	2 ounces.

Mix. Dose : ½ to 1 teaspoonful in water three or four times a day.

SEBORRHŒA OLEOSA—OILY SEBORRHŒA.

Take of Solution of arsenite of potassium	1 drachm.
Sulphate of strychnine	1 grain.
Aloin	2 grains.
Sirup of lactophosphate of lime and iron	6 ounces.

Mix. Dose : 1 teaspoonful in water three times a day.

SEBORRHŒA OLEOSA—OILY SEBORRHŒA.

Take of Sublimed sulphur	½ drachm.
Extract of dandelion	½ drachm.

Mix and divide into 30 pills.
Dose : 1 pill three or four times a day.

SEBORRHŒA OLEOSA—OILY SEBORRHŒA.

Take of Venice turpentine	5 grains.
Pyrophosphate of iron	35 grains.

Mix and divide into 20 pills.
Dose : 1 pill three times a day.

SYCOSIS—INFLAMMATION OF THE HAIR-FOLLICLES OF THE BEARD.

Take of Iodide of iron	2 scruples.
Aloin	2 grains.
Extract of belladonna	3 grains.

Mix and divide into 20 pills.
Dose . 1 pill three or four times a day.

SYCOSIS—INFLAMMATION OF THE HAIR-FOLLICLES OF THE BEARD.

Take of Tartrate of antimony and potassium	2 grains.
Extract of cinchona	2 scruples.

Mix and divide into 20 pills.
Dose : 1 pill three or four times a day.

SYCOSIS—INFLAMMATION OF THE HAIR-FOLLICLES OF THE BEARD.

Take of Corrosive sublimate	2 grains.
Tincture of prickly ash	6 ounces.

Mix. Dose : 2 teaspoonfuls in water three or four times a day.

SYCOSIS—INFLAMMATION OF THE HAIR-FOLLICLES OF THE BEARD.

Take of Sirup of the hypophosphites	3 ounces.
Extract of malt	3 ounces.
Chlorate of potassium	2 drachms.

Mix. Dose : 1 dessertspoonful in water three times a day.

SYCOSIS, CHRONIC—INFLAMMATION OF THE HAIR-FOLLICLES OF THE BEARD.

Take of Sulphide of calcium	10 grains.
Sulphate of quinine	2 scruples.

Mix and divide into 20 pills.
Dose : 1 pill four times a day.

SYCOSIS, CHRONIC—INFLAMMATION OF THE HAIR-FOLLICLES OF THE BEARD.

Take of Arsenious acid	1 grain.
Pyrophosphate of iron	1 drachm.
Podophyllotoxin	5 grains.

Mix and divide into 30 pills.
Dose : 1 pill three times a day.

SYPHILIS.

Take of Corrosive sublimate	1 grain.
Glycerin	2 ounces.
Water	2 ounces.

Mix. Dose : 2 teaspoonfuls four times a day.

SYPHILIS.

Take of Tannate of mercury	5 grains.
Gum tragacanth	sufficient.
Glycerin	sufficient.

Mix and divide into 10 pills.

Dose: 1 pill a day, and gradually increase to three.

SYPHILIS.

Take of Chloride of gold and sodium	1 grain.
Extract of gentian	15 grains.
Powdered licorice-root	sufficient.

Mix and divide into 20 pills.

Dose: 1 pill three times a day.

SYPHILIS.

Take of Iodide of arsenic	½ grain.
Extract of calamus	30 grains.

Mix and divide into 15 pills.

Dose: 1 pill three times a day.

SYPHILIS.

Take of Tincture of burdock-seed	2 ounces.
Tincture of poke-root	2 ounces.
Tincture of prickly-ash root	2 ounces.
Tincture of yaw or queen's root	2 ounces.

Dose: ½ to 1 teaspoonful in water before meals.

SYPHILIS.

Take of Powdered bloodroot	2 grains.
Iodide of iron	40 grains.

Mix and divide into 20 pills.

Dose: 1 pill four times a day.

SYPHILIS.

Take of Guaiac	40 grains.
Protiodide of mercury	3 grains.

Mix and divide into 12 pills.

Dose: 1 pill four times a day.

SYPHILIS.

Take of Calomel	2 grains.
Sugar	2 scruples.

Mix and divide into 10 powders.

Dose: 3 to 5 powders a day.

SYPHILIS.

Take of Arsenious acid	½ grain.
Sulphate of iron	40 grains.

Mix and divide into 20 pills.
Dose: 2 to 4 pills a day.

SYPHILIS.

Take of Iodide of potassium	200 grains.
Tincture of stillingia	2 ounces.
Compound sirup of sarsaparilla	3 ounces.

Mix. Dose: 1 to 2 teaspoonfuls four times a day.

ULCUS—ULCER.

Take of Fluid extract of witch-hazel	1 ounce.
Sirup of wild cherry	1 ounce.

Mix. Dose: 30 drops to 1 teaspoonful three or four times a day.

URTICARIA, ACUTE.

Take of Citrate of potassium	½ ounce.
Bicarbonate of sodium	3 drachms.
Peppermint-water	4 ounces.

Mix. Dose: 1 teaspoonful every two or three hours.

URTICARIA, ACUTE.

Take of Oxalate of cerium	24 grains.
Creasote	3 drops.

Mix and divide into 12 pills.
Dose: 1 pill every one or two hours.

URTICARIA, ACUTE.

Take of Bromide of sodium	5 drachms.
Sirup of orange-flowers	5 ounces.

Mix. Dose: 1 tablespoonful in water every two or three hours.

URTICARIA, ACUTE.

Take of Salicylate of sodium	200 grains.
Glycerin	1 ounce.
Water	4 ounces.

Mix. Dose: 1 tablespoonful in water every two or three hours.

URTICARIA, ACUTE.

Take of Tartar emetic	1 grain.
Solution of acetate of ammonium	5 ounces.

Mix. Dose : 2 teaspoonfuls in water every one or two hours.

URTICARIA, CHRONIC.

Take of Nitrate of silver	2 grains.
Extract of gentian	30 grains.
Extract of henbane	2 grains.

Mix and divide into 16 pills.
Dose : 1 pill three times a day.

URTICARIA, CHRONIC.

Take of Oxide of zinc	4 grains.
Extract of calamus	16 grains.

Mix and divide into 16 pills.
Dose : 1 pill three times a day.

URTICARIA, CHRONIC.

Take of Sulphurous acid	2 ounces.
Sirup of ginger	2 ounces.

Mix. Dose : 1 to 2 teaspoonfuls in a wineglassful of water three times a day.

URTICARIA, CHRONIC.

Take of Arsenious acid	1 grain.
Aloin	5 grains.
Extract of belladonna	2 grains.
Extract of calamus	40 grains.

Mix and divide into 30 pills.
Dose : 1 pill after meals.

VARIOLA—SMALL-POX.

Take of Solution of acetate of ammonium	2 ounces.
Salicylic acid	1 drachm.
Simple sirup	1 ounce.

Mix. Dose : 1 teaspoonful in water every hour or two. (Acts as a febrifuge and moderates the eruption.)

VARIOLA—SMALL-POX.

Take of Chlorate of potassium	4 drachms.
Fluid extract of cimicifuga	½ ounce.
Sirup of tolu	2½ ounces.

Mix. Dose : 1 teaspoonful in water every four hours. (Moderates the eruption.)

VARIOLA—SMALL-POX.

Take of Compound powder of ipecacuanha	40 grains.
Sulphate of quinine	40 grains.

Mix and divide into 20 pills.
Dose: 2 to 4 pills every three or four hours.

VARIOLA—SMALL-POX.

Take of Hydrate of chloral	4 drachms.
Solution of acetate of ammonium	6 ounces.

Mix. Dose: ½ to 1 tablespoonful in water every two or three hours.

VERRUCA—WART.

Take of Carbonate of magnesium	1 to 10 drachms.

Divide into 12 powders.
Dose: 1 powder in sirup or milk four times a day.

VERRUCA—WART.

Take of Carbonate of magnesium	2 drachms.
Sublimed sulphur	4 drachms.
Sirup of senna	6 ounces.

Mix. Dose: 1 dessertspoonful morning and night.

VITILIGO—LEUCODERMA.

Take of Pyrophosphate of iron	20 grains.
Sulphate of quinine	20 grains.
Arsenious acid	1 grain.
Extract of ignatia	2 grains.

Mix and divide into 30 pills.
Dose: 1 pill after meals.

EXTERNAL.

ACNE.

Take of Tincture of green soap	3 ounces.

Use in obstinate cases of acne—add a teaspoonful to one or two tablespoonfuls of water, and sponge over the surface every second or third day.

ACNE.

Take of Extract of erythroxylon	1 drachm.
Ointment of oleate of zinc	2 drachms.
Ointment of rose-water	4 drachms.

Mix. Beneficial in soothing acne spots.

ACNE.

Take of Naphthol	10 grains.
Sublimed sulphur	1 scruple.
Simple ointment	1 ounce.

Mix.

ACNE.

Take of Ointment of nitrate of mercury	3 drachms.
Oil of chamomile	5 drops.
Ointment of benzoated oxide of zinc	5 drachms.

Mix.

ACNE.

Take of Tincture of witch-hazel	½ ounce.
Spirit of lavender	1 drachm.
Potash or soft soap	2 drachms.
Alcohol	4 ounces.

Mix. To stimulate indurated acne spots.

ACNE.

Take of Sublimed sulphur	20 grains.
Ammoniated mercury	10 grains.
Oil of camphor	5 drops.
Ointment of oxide of zinc	1 ounce.

Mix.

ACNE.

Take of Boracic acid	1 drachm.
Distilled witch-hazel	2 ounces.
Rose-water	3 ounces.

Mix. Use especially in black-heads, or acne punctata.

ACNE.

Take of Sublimed sulphur	½ drachm.
Thymol	3 grains.
Oleate of zinc	1 scruple.
Lanolin	½ ounce.

Mix.

ACNE.

Take of Carbolic acid	2 grains.
Ointment of oleate of lead	2 drachms.

Mix.

ACNE.

Take of Ammoniated mercury	5 grains.
Oil of chamomile	4 drops.
Ointment of oxide of zinc	½ ounce.

Mix.

ACNE.

Take of Sublimed sulphur	1 scruple.
Oil of juniper	10 drops.
Carbonate of zinc	1 drachm.
Ointment of rose-water	1 ounce.

Mix.

ACNE.

Take of Tincture of benzoin	1 drachm.
Corrosive sublimate	5 grains.
Glycerin	2 ounces.
Water	2 ounces.

Mix.

ALOPECIA.

Take of Bicarbonate of sodium	2 drachms.
Water of ammonia	1 ounce.
Tincture of cantharides	4 drachms.
Spirit of rosemary	4 drachms.
Oil of nutmeg	15 drops.
Water of Cologne, sufficient quantity to make	10 ounces.

Mix.

ALOPECIA.

Take of Eucalyptus-leaves	½ ounce.
Lard	2 ounces.

Mix.

ALOPECIA.

Take of Fluid oleate of mercury	1½ ounce.
Oil of ergot	1½ ounce.
Oil of rose	2 drops.
Oil of bergamot	4 drops.

Mix.

ALOPECIA.

Take of Lanolin	½ ounce.
Lard	½ ounce.

Mix.

ALOPECIA.

Take of Tincture of benzoin	2 drachms.
Spirit of chloroform	1 ounce.
Tincture of nux vomica	2 drachms.
Alcohol	2½ ounces.

Mix.

ALOPECIA.

Take of Ointment of oleate of mercury	½ ounce.
Lanolin	½ ounce.

Mix.

ALOPECIA CIRCUMSCRIPTA—ALOPECIA AREATA.

Take of Resorcin	1 drachm.
Alcohol	4 ounces.

Mix.

ALOPECIA CIRCUMSCRIPTA—ALOPECIA AREATA.

Take of Fluid extract of pilocarpus	1 ounce.
Spirit of ammonia	½ ounce.
Soap liniment	1½ ounce.

Mix.

ALOPECIA CIRCUMSCRIPTA—ALOPECIA AREATA.

Take of Ointment of oleate of mercury	½ ounce.
Oil of chamomile	10 drops.

Mix.

ALOPECIA CIRCUMSCRIPTA—ALOPECIA AREATA.

Take of Thymol	½ drachm.
Castor-oil	2 ounces.
Almond-oil	2 ounces.

Mix.

ALOPECIA CIRCUMSCRIPTA—ALOPECIA AREATA.

Take of Oil of turpentine	½ ounce.
Soap liniment	4 ounces.

Mix.

ANIDROSIS—A DECREASED OR COMPLETE CESSATION OF THE SECRETION OF SWEAT.

Take of Lanolin	½ ounce.
Oil of eucalyptus	10 drops.
Lard	1½ ounces.

Mix.

ANTHRAX—MALIGNANT PUSTULE.

Take of Sulphate of quinine	½ ounce.
Carbolic acid	5 grains.
Powdered arrow-root	½ ounce.
Oil of turpentine, a sufficient quantity to make into a paste.	

Mix.

ANTHRAX—MALIGNANT PUSTULE.

Take of Salicylic acid	½ drachm.
Carbonate of lead	1 drachm.
Camphor	½ drachm.
Benzoated lard	1 ounce.

Mix.

BROMIDROSIS—ODOROUS SWEAT.

Take of Sulphate of zinc	8 grains.
Carbolic acid	5 grains.
Glycerin	6 ounces.

Mix. Apply with old muslin or lint.

BROMIDROSIS—ODOROUS SWEAT.

Take of Naphthol	1 drachm.
Powdered oleate of zinc	4 drachms.
Powdered arrow-root	½ ounce.

Mix.

BROMIDROSIS—ODOROUS SWEAT.

Take of Dried alum	2 ounces.
Powdered oleate of zinc	2 drachms.

Mix.

BROMIDROSIS—ODOROUS SWEAT.

Take of Salicylic acid	2 drachms.
Subnitrate of bismuth	½ ounce.

Mix.

BROMIDROSIS—ODOROUS SWEAT.

Take of Boracic acid	1 drachm.
Tincture of witch-hazel	2 ounces.
Rose-water	1 ounce.

Mix.

BROMIDROSIS—ODOROUS SWEAT.

Take of Permanganate of potassium	10 grains.
Spirit of rosemary	2 drachms.
Alcohol	4 ounces.

Mix.

CARBUNCULUS—CARBUNCLE.

Take of Carbolic acid	12 grains.
Iodine	4 drachms.
Glycerin	1 ounce.

Mix.

CARBUNCULUS—CARBUNCLE.

Take of Lead plaster	6 drachms.
Turpentine	2 drachms.
Galbanum	4 drachms.
Extract of opium	½ drachm.

Mix and make into plaster.

CARBUNCULUS—CARBUNCLE.

Take of Extract of conium	1 drachm.
Ointment of mercury oleate	4 drachms.
Resin cerate	1 ounce.

Mix.

CARBUNCULUS—CARBUNCLE.

Take of Honey	2 drachms.
Extract of arnica	1 drachm.
Resin cerate	1 ounce.

Mix.

CARBUNCULUS—CARBUNCLE.

Take of Extract of belladonna	½ drachm.
Extract of opium	10 grains.
Ointment of nitrate of mercury	½ ounce.
Cerate of subacetate of lead	½ ounce.
Ointment of oxide of zinc	1 ounce.

Mix.

CARBUNCULUS—CARBUNCLE.

Take of Extract of stramonium	1 drachm.
Camphor	1 drachm.
Ointment of rose-water	1 ounce.

Mix.

CARBUNCULUS—CARBUNCLE.

Take of Carbolic acid	½ drachm.
Tincture of witch-hazel	2 ounces.
Water	1 pint.

Mix.

CHANCROID.

Take of Iodol	2 drachms.
Subnitrate of bismuth	½ ounce.

Mix.

CHANCROID.

Take of Subiodide of bismuth	½ ounce.
Powdered red cinchona bark	½ ounce.

Mix.

CHANCROID.

Take of Iodoform	½ ounce.
Powdered coffee	½ ounce.

Mix.

CHANCROID.

Take of Powdered chlorate of potassium	½ ounce.
Carbonate of lead	1 ounce.
Sulphate of morphine	2 grains.

Mix.

CHANCROID.

Take of Hydrate of chloral	10 grains.
Tincture of witch-hazel	1 drachm.
Tincture of arnica	1 drachm.
Water	10 ounces.

Mix.

CHANCROID.

Take of Creasote	3 drops.
Corrosive sublimate	4 grains.
Glycerin	2 ounces.
Rose-water	3 ounces.

Mix.

CHLOASMA.

Take of	Chrysarobin	2 scruples.
	Benzoated lard	1 ounce.

Mix.

CHLOASMA.

Take of	Corrosive sublimate	10 grains.
	Chloride of ammonium	1 drachm.
	Alcohol	1 ounce.
	Distilled witch-hazel	3 ounces.

Mix.

CICATRICES—SCARS.

Take of	Iodide of potassium	1 drachm.
	Lanolin	½ ounce.

Mix.

CLAVUS—CORN.

Take of	Salicylic acid	2 drachms.
	Flexible collodion	4 drachms.

Mix. Pencil over the corn night and morning.

COMEDO—SEBACEOUS PLUGS OR GRUBS.

Take of	Tincture of green soap	2 ounces.
	Thymol	5 grains.
	Water	4 ounces.

Mix.

COMEDO—SEBACEOUS PLUGS OR GRUBS.

Take of	Spirit of lavender	1 drachm.
	Spirit of rosemary	1 ounce.
	Water	4 ounces.

Mix.

COMEDO—SEBACEOUS PLUGS OR GRUBS.

Take of	Soap liniment	2 ounces.
	Water of ammonia	½ ounce.
	Water	5 ounces.

Mix.

COMBUSTIO—BURN—SCALD.

Take of	Prepared suet	2 ounces.
	Resin cerate	2 drachms.
	Powdered arrow-root	½ ounce.
	Linseed-oil	1 pint.

Mix.

COMBUSTIO—BURN—SCALD.

Take of Cerate of subacetate of lead	1 ounce.
Pure cocaine	4 grains.
Ointment of oxide of zinc	1 ounce.

Mix.

COMBUSTIO—BURN—SCALD.

Take of Pure cocaine	5 grains.
Ointment of oxide of zinc	1 ounce.

Mix.

COMBUSTIO—BURN—SCALD.

Take of Distilled witch-hazel	2 ounces.
Solution of subacetate of lead	1 ounce.
Tincture of opium	1 ounce.
Water	1 pint.

Mix.

COMBUSTIO—BURN—SCALD.

Take of Pure cocaine	8 grains.
Olive-oil	4 ounces.

Mix.

COMBUSTIO—BURN—SCALD.

Take of Iodoform	½ drachm.
Bicarbonate of sodium	40 grains.
Ointment of rose-water	2 ounces.

Mix.

COMBUSTIO—BURN—SCALD.

Take of Bicarbonate of sodium	½ ounce.
Water	1 pint.

Mix.

COMBUSTIO—BURN—SCALD.

Take of Salicylate of sodium	½ drachm.
Olive-oil	5 ounces.

Mix.

COMBUSTIO—BURN—SCALD.

Take of Carbolic acid	15 grains.
Fluid extract of marigold	½ ounce.
Olive-oil	½ pint.

Mix.

COMBUSTIO—BURN—SCALD.

Take of Boracic acid	1 ounce.
Water	½ pint.

Mix.

COMBUSTIO—BURN—SCALD.

Take of Carbonate of lead	2 ounces.
Olive-oil, enough to make a soft ointment.	

Mix.

COMBUSTIO—BURN—SCALD.

Take of Levigated calamine	4 drachms.
Subnitrate of bismuth	2 drachms.
Simple ointment	1 ounce.

Mix.

CONDYLOMATA.

Take of Calomel	3 drachms.
Subnitrate of bismuth	3 drachms.

Mix.

CONDYLOMATA.

Take of Tannic acid	1 drachm.
Camphor	½ drachm.
Ointment of nitrate of mercury	2 drachms.
Lanolin	4 drachms.

Mix.

CONGELATIO—FROST-BITE.

Take of Purified chloroform (by weight)	½ ounce.
Tincture of opium	½ ounce.
Tincture of aconite	½ ounce.
Alcohol	½ ounce.

Mix.

CONGELATIO—FROST-BITE.

Take of Ointment of oleate of lead	½ ounce.
Extract of opium	10 grains.
Extract of belladonna	10 grains.
Extract of arnica	½ drachm.

Mix.

CONGELATIO—FROST-BITE.

Take of Tincture of witch-hazel	2 ounces.
Tincture of opium	2 ounces.
Solution of subacetate of lead	2 ounces.
Water	½ pint.

Mix.

CONGELATIO—FROST-BITE.

Take of Compound tincture of benzoin	3 drachms.
Chloroform (by weight)	2 drachms.
Tincture of aconite	1 drachm.

Mix.

DERMATALGIA—NEURALGIA OF THE SKIN.

Take of Tincture of aconite-root	1 drachm.
Menthol	½ drachm.
Spirit of chloroform	1 ounce.
Alcohol	3 ounces.

Mix.

DERMATALGIA—NEURALGIA OF THE SKIN.

Take of Tincture of opium	2 drachms.
Tincture of arnica	2 drachms.
Creasote	5 drops.
Soap liniment	4 ounces.

Mix.

DERMATITIS—INFLAMMATION OF THE SKIN.

Take of Lycopodium	3 drachms.
Subnitrate of bismuth	3 drachms.
Powdered oleate of zinc	3 drachms.

Mix.

DERMATITIS—INFLAMMATION OF THE SKIN.

Take of Oleate of iron	1 drachm.
Ointment of rose-water	1 ounce.

Mix. Especially valuable in arsenical eruptions.

ECZEMA, ACUTE—TETTER.

Take of Tannic acid	1 scruple.
Subnitrate of bismuth	2 drachms.
Rose-water	6 ounces.

Mix.

ECZEMA, ACUTE—TETTER.

Take of Carbonate of zinc	1 drachm.
Carbonate of lead	1 drachm.
Sublimed sulphur	1 drachm.
Powdered arrow-root	1 drachm.

Mix.

ECZEMA, ACUTE—TETTER.

Take of Carbonate of lead	4 drachms.
Powdered starch	3 drachms.
Lycopodium	4 drachms.

Mix.

ECZEMA, ACUTE—TETTER.

Take of Powdered oleate of zinc	1 drachm.
Camphor	1 drachm.
Powdered starch	2 ounces.

Mix.

ECZEMA, ACUTE—TETTER.

Take of Extract of opium	1 drachm.
Acetate of lead	1 scruple.
Subnitrate of bismuth	1 drachm.
Ointment of rose-water	1 ounce.

Mix.

ECZEMA, SUBACUTE—TETTER.

Take of Sublimed sulphur	1 drachm.
Boracic acid	1 drachm.
Simple ointment	1 ounce.

Mix.

ECZEMA, CHRONIC—TETTER.

Take of Red oxide of mercury	30 grains.
Sublimed sulphur	1 drachm.
Oil of wintergreen	20 drops.
Ointment of oxide of zinc	3 ounces.

Mix.

ECZEMA, CHRONIC—TETTER.

Take of Calomel	20 grains.
Acetate of lead	½ drachm.
Extract of belladonna	10 grains.
Subnitrate of bismuth	1 drachm.
Carbonate of zinc	1 drachm.
Benzoated lard	2 ounces.

Mix.

ECZEMA, CHRONIC—TETTER.

Take of Creasote	10 drops.
Carbonate of lead	2 drachms.
Subnitrate of bismuth	1 drachm.
Calomel	10 grains.
Olive-oil	5 ounces.

Mix.

ECZEMA, CHRONIC—TETTER.

Take of Oil of cade	½ drachm.
Ointment of nitrate of mercury	2 drachms.
Prepared suet	1 ounce.

Mix.

ECZEMA, CHRONIC—TETTER.

Take of Icthyol (sulpho-ichthyolate of sodium)	2 drachms.
Lard	1 ounce.

Mix.

ECZEMA, CHRONIC—TETTER.

Take of Icthyol (sulpho-ichthyolate of sodium)	2 drachms.
Oil of eucaylptus	3 drops.
Ointment of oxide of zinc	1 ounce.

Mix.

ECZEMA, CHRONIC—TETTER.

Take of Resorcin	5 or 10 grains.
Ointment of oxide of zinc	1 ounce.

Mix.

ECZEMA, INFANTILE—INFANTILE ECZEMA.

Take of Calomel	10 grains.
Oil of chamomile	5 drops.
Powdered arrow-root	1 drachm.
Ointment of oxide of zinc	1 ounce.

Mix. Useful particularly in the pustular variety or milk crust.

ECZEMA, INFANTILE—INFANTILE ECZEMA.

Take of Carbonate of lead	1 drachm.
Carbonate of zinc	1 drachm.
Camphor	1 scruple.
Sublimed sulphur	½ drachm.
Ointment of rose-water	1 ounce.

Mix.

ECZEMA CAPITIS—ECZEMA OF THE HEAD.

Take of Cod-liver oil	4 ounces.
Carbonate of lead	2 drachms.
Naphthol	8 grains.

Mix.

ECZEMA AURIUM—ECZEMA OF THE EARS.

Take of Ointment of oleate of lead	3 drachms.
Oil of cade	10 drops.
Lanolin	2 drachms.
Ointment of oxide of zinc	3 drachms.

Mix.

ECZEMA FACIEI ET COLLI—ECZEMA OF THE FACE AND NECK.

Take of Ammoniated mercury	10 grains.
Arrow-root	1 drachm.
Oil of Chamomile	3 drops.
Carbonate of zinc	1 drachm.
Lard	1 ounce.

Mix.

ECZEMA BARBÆ—ECZEMA OF THE BEARD.

Take of Cod-liver oil	4 ounces.
Carbonate of lead	2 drachms.
Naphthol	5 grains.

Mix.

ECZEMA TARSI—ECZEMA OF THE EDGES OF THE EYELIDS.

Take of Yellow oxide of mercury	5 grains.
Ointment of rose-water	3 drachms.

Mix.

ECZEMA NASI—ECZEMA OF THE NOSE.

Take of Glycerole of subacetate of lead	1 ounce.
Chaulmoogra oil	½ ounce.
Oil of eucalyptus	5 drops.
Glycerin	½ ounce.

Mix.

ECZEMA LABIORUM—ECZEMA OF THE LIPS.

Take of Prepared suet	½ ounce.
Camphor	1 scruple.
Subnitrate of bismuth	1 drachm.

Mix.

ECZEMA MAMMARUM—ECZEMA OF THE BREAST AND NIPPLE.

Take of Fluid extract of geranium	3 drachms.
Glycerin	3 drachms.

Mix.

ECZEMA MAMMARUM—ECZEMA OF THE BREAST.

Take of Boracic acid	1 drachm.
Sublimed sulphur	10 grains.
Ointment of oxide of zinc	1 ounce.

Mix.

ECZEMA UMBILICI—ECZEMA OF THE UMBILICUS.

Take of Thymol	1 grain.
Powdered red cinchona bark	3 drachms.
Subnitrate of bismuth	3 drachms.

Mix.

ECZEMA ARTICULORUM—ECZEMA OF THE FLEXOR SURFACES OF THE JOINTS.

Take of Naphthol	5 grains.
Ointment of nitrate of mercury	2 drachms.
Oil of chamomile	5 drops.
Ointment of benzoated oxide of zinc	1 ounce.

Mix.

ECZEMA GENITALIUM—ECZEMA OF THE GENITAL ORGANS.

Take of Acetate of lead	8 grains.
Calomel	10 grains.
Ointment of oxide of zinc	1 ounce.

Mix.

ECZEMA GENITALIUM—ECZEMA OF THE GENITAL ORGANS.

Take of Yellow oxide of mercury	10 grains.
Extract of opium	5 grains.
Camphor	10 grains.
Ointment of oxide of zinc	1 ounce.

Mix.

ECZEMA SCROTI—ECZEMA OF THE SCROTUM.

Take of Extract of belladonna	½ drachm.
Extract of opium	10 grains.
Tannic acid	1 scruple.
Ointment of nitrate of mercury	2 drachms.

Mix.

ECZEMA SCROTI ET ANI—ECZEMA OF THE SCROTUM AND ANUS.

Take of Boroglyceride (50-per-cent. solution)	½ ounce.
Lanolin	½ ounce.

Mix.

ECZEMA ANI—ECZEMA OF THE ANUS.

Take of Hydrate of chloral	½ drachm.
Camphor	1 drachm.
Prepared suet	1 ounce.

Mix.

ECZEMA LABIORUM—ECZEMA OF THE LABIA.

Take of Extract of opium	10 grains.
Powdered stramonium	½ drachm.
Powdered tobacco	½ drachm.
Camphor	½ drachm.
Ointment of elder-flowers	1 ounce.

Mix.

ECZEMA CRURUM—ECZEMA OF THE LEGS.

Take of Oil of cade	30 drops.
Sublimed sulphur	1 scruple.
Ointment of oxide of zinc	½ ounce.
Cerate of subacetate of lead	½ ounce.

Mix.

ECZEMA INTERTRIGO.

Take of Oleate of zinc	2 drachms.
Glycerin	2 ounces.
Olive-oil	2 ounces.

Mix.

ECZEMA MANUUM ET PEDUM—ECZEMA OF THE HANDS AND FEET.

Take of Naphthol	10 grains.
Extract of belladonna	10 grains.
Ointment of nitrate of mercury	3 drachms.
Benzoated lard	1 ounce.

Mix.

ECZEMA MANUUM ET PEDUM—ECZEMA OF THE HANDS AND FEET.

Take of Salicylic acid	½ drachm.
Extract of ergot	1 scruple.
Ointment of oxide of zinc	1 ounce.

Mix.

ECZEMA MANUUM ET PEDUM—ECZEMA OF THE HANDS AND FEET.

Take of Balsam of Peru	½ drachm.
Ointment of nitrate of mercury	½ ounce.
Oil of cade	½ drachm.
Lanolin	½ ounce.

Mix.

EPITHELIOMA—EPITHELIAL CANCER.

Take of Chloride of zinc	5 grains.
Sublimed sulphur	1 scruple.
Powdered arrow-root	1 drachm.
Arsenious acid	10 grains.
Simple ointment	1 ounce.

Mix. Spread the ointment on an old piece of muslin and apply constantly to the part.

EPITHELIOMA—EPITHELIAL CANCER.

Take of Carbolic acid	3 grains.
Lanolin	2 drachms.

Mix.

EPITHELIOMA—EPITHELIAL CANCER.

Take of Oleate of arsenic	5 to 10 grains.
Chloride of zinc	5 grains.
Powdered arrow-root	½ drachm.
Extract of belladonna	5 grains.
Extract of opium	10 grains.
Lanolin	½ ounce.

Mix.

EPITHELIOMA—EPITHELIAL CANCER.

Take of Oleate of arsenic	5 grains.
Ointment of oleate of mercury	1 drachm.
Simple ointment	1 ounce.

Mix.

EPITHELIOMA—EPITHELIAL CANCER.

Take of Sulphate of atropine	4 grains.
Sulphate of morphine	4 grains.
Distilled witch-hazel	2 ounces.
Water	3 ounces.

Mix. Use on old muslin, and renew application frequently for the relief of pain.

EPITHELIOMA—EPITHELIAL CANCER.

Take of Powdered chlorate of potassium	½ ounce.
Powdered ergot	½ ounce.

Mix. Dust over the surface.

ERYSIPELAS.

Take of Acetate of lead	1 scruple.
Infusion of digitalis	½ pint.

Mix.

ERYSIPELAS.

Take of Subnitrate of bismuth	1 drachm.
Carbonate of lead	2 drachms.
Creasote	3 drops.
Ointment of rose-water	1 ounce.

Mix.

ERYSIPELAS.

Take of Tincture of chloride of iron	1 ounce.
Compound tincture of cinchona	1 ounce.
Glycerin	1 ounce.

Mix.

ERYSIPELAS.

Take of Yellow oxide of mercury	10 grains.
Powdered arrow-root	1 drachm.
Ointment of oxide of zinc	1 ounce.

Mix.

ERYTHEMA.

Take of Borax	1 drachm.
Glycerin	1 ounce.
Rose-water	2 ounces.

Mix.

ERYTHEMA.

Take of Subnitrate of bismuth	1 drachm.
Carbonate of zinc	1 drachm.
Ointment of rose-water	1 ounce.

Mix.

FURUNCULUS—BOIL.

Take of Extract of belladonna	½ drachm.
Extract of arnica	1 scruple.
Sulphate of morphine	2 grains.
Lanolin	1 ounce.

Mix.

FURUNCULUS—BOIL.

Take of Extract of hyoscyamus	1 scruple.
Ointment of nitrate of mercury	3 drachms.
Oil of spearmint	½ drachm.
Ointment of oxide of zinc	1 ounce.

Mix.

FURUNCULUS—BOIL.

Take of Lead plaster	4 ounces.
Opium plaster	2 ounces.

Mix.

FURUNCULUS—BOIL.

Take of Balsam of Peru	1 drachm.
Iodol	10 grains.
Oxide of lead	½ drachm.
Lard	1 ounce.

Mix.

HERPES.

Take of Sulphate of morphine	3 grains.
Prepared calamine	½ ounce.
Subnitrate of bismuth	½ ounce.

Mix. Dust over the surface.

HERPES.

Take of Calomel	2 drachms.
Powdered starch	½ ounce.

Mix. Sprinkle on the affected part.

HERPES ZOSTER—SHINGLES.

Take of Hydrochlorate of cocaine	5 grains.
Fluid extract of belladonna	½ ounce.
Distilled witch-hazel	1½ ounce.

Mix. Mop over the surface frequently, and a fine powder can at the same time be dusted on the parts; or collodion can be used in place of the latter.

HYPERIDROSIS—INCREASED SECRETION OF SWEAT.

Take of Sulphate of quinine	½ drachm.
Alcohol	5 ounces.

Mix.

HYPERIDROSIS—INCREASED SECRETION OF SWEAT.

Take of Naphthol	1 drachm.
Glycerin	1½ ounce.
Alcohol	1½ ounce.

Mix.

HYPERIDROSIS—INCREASED SECRETION OF SWEAT.

Take of Naphthol	2 drachms.
Tincture of saponin	2 ounces.
Tincture of witch-hazel	2 ounces.

Mix.

HYPERIDROSIS—INCREASED SECRETION OF SWEAT.

Take of Permanganate of potassium	10 grains.
Alcohol	1 ounce.
Water	4 ounces.

Mix.

HYPERIDROSIS—INCREASED SECRETION OF SWEAT.

Take of Salicylic acid	½ ounce.
Powdered oleate of zinc	2 drachms.

Mix.

ICHTHYOSIS.

Take of Oil of ergot	3 ounces.
Lanolin	1 ounce.

Mix.

IMPETIGO CONTAGIOSA.

Take of Ammoniated mercury	10 grains.
Thymol	1 grain.
Carbonate of zinc	1 drachm.
Prepared lard	1 ounce.

Mix.

LENTIGO—FRECKLE.

Take of Boracic acid	1 drachm.
Distilled witch-hazel	5 ounces.

Mix.

LENTIGO—FRECKLE.

Take of Corrosive sublimate	10 grains.
Alcohol	2 ounces.
Rose-water	2 ounces.

Mix.

LENTIGO—FRECKLE.

Take of Oleate of copper	10 grains.
Hydrastin hydrochlorate	2 grains.
Ointment of rose-water	1 ounce.

Mix.

LUPUS ERYTHEMATOSUS.

Take of Creasote	8 drops.
Subnitrate of bismuth	1 drachm.
Lanolin	4 drachms.
Ointment of rose-water	4 drachms.

Mix.

LUPUS ERYTHEMATOSUS.

Take of Tincture of green soap	3 ounces.
Distilled witch-hazel	2 ounces.

Mix. Sponge over the surface every day or two.

LUPUS VULGARIS.

Take of Corrosive sublimate	5 grains.
Powdered arrow-root	1 drachm.
Subnitrate of bismuth	1 drachm.
Ointment of rose-water	1 ounce.

Mix.

LUPUS VULGARIS.

Take of Creasote	5 drops.
Salicylic acid	15 grains.
Ointment of oxide of zinc	1 ounce.

Mix.

MILIARIA—PRICKLY HEAT.

Take of Calomel	10 grains.
Powdered arrow-root	1 drachm.
Carbonate of lead	2 drachms.
Lard	1 ounce.

Mix.

MILIARIA—PRICKLY HEAT.

Take of Lime-water	3 ounces.
Levigated calamine	½ ounce.
Glycerin	2 ounces.

Mix.

MILIUM—ACNE ALBIDA.

Take of Tincture of iodine	2 drachms.
Carbolic acid	½ drachm.

Mix. Touch each spot every second or third day, exercising care to avoid the natural skin.

MILIUM—ACNE ALBIDA.

Take of Liniment of camphor	1 ounce.
Tincture of green soap	2 ounces.

Mix.

NÆVUS VASCULARIS.

Take of Solution of subacetate of lead	2 ounces.

Apply once or twice a day for some months.

NÆVUS VASCULARIS.

Take of Solution of arsenite of potassium	1 ounce.

Paint over the surface several times a day.

PARÆSTHESIA, OR PRURITUS ANI—ITCHING OF THE ANUS.

Take of Hydrate of chloral	1 drachm.
Camphor	2 drachms.
Prepared suet	2 ounces.

Mix.

PARÆSTHESIA, OR PRURITUS ANI—ITCHING OF THE ANUS.

Take of Naphthol	1 scruple.
Subnitrate of bismuth	2 drachms.
Ointment of oxide of zinc	1 ounce.

Mix.

PARÆSTHESIA, OR PRURITUS SCROTI—ITCHING OF THE SCROTUM.

Take of Extract of stramonium-leaves	8 grains.
Camphor	1 drachm.
Benzoated lard	1 ounce.

Mix.

PARÆSTHESIA, OR PRURITUS LABIORUM—ITCHING OF THE LABIA.

Take of Borate of sodium	1 drachm.
Camphor	1 scruple.
Carbonate of lead	1 drachm.
Carbolic acid	3 grains.
Ointment of oxide of zinc	1 ounce.

Mix.

PARÆSTHESIA, OR PRURITUS LABIORUM—ITCHING OF THE LABIA.

Take of Extract of belladonna	4 grains.
Extract of opium	6 grains.
Tannic acid	1 drachm.
Oil of theobroma, a sufficient quantity.	

Mix, and divide into 12 suppositories.

Insert one in the vagina every two or three hours until relieved.

PARÆSTHESIA, OR PRURITUS VAGINÆ—ITCHING OF THE VAGINA.

Take of Alum	1 ounce.
Borate of sodium	1 ounce.

Mix. Add to one quart of hot water, and inject into the vagina.

PARÆSTHESIA, OR PRURITUS VAGINÆ—ITCHING OF THE VAGINA.

Take of Hyposulphite of sodium	6 drachms.

Add to one pint of hot water, and at once inject into the vagina.

PEDICULOSIS—LOUSINESS.

Take of Fluid extract of delphinium	1 ounce.
Water	4 ounces.

Mix.

PEDICULOSIS—LOUSINESS.

Take of Ointment of oleate of mercury	1 ounce.
Chlorinated oil	1 ounce.

Mix.

PEDICULOSIS—LOUSINESS.

Take of Naphthol	½ drachm.
Lard	1 ounce.

Mix.

PEMPHIGUS.

Take of Powdered red cinchona	½ ounce.
Carbonate of lead	2 drachms.
Subnitrate of bismuth	2 drachms.

Mix.

PEMPHIGUS.

Take of Prepared calamine	½ ounce.
Glycerin	2 ounces.
Lime-water	4 ounces.

Mix.

PEMPHIGUS.

Take of Subnitrate of bismuth	2 drachms.
Powdered starch	4 drachms.
Ointment of benzoated oxide of zinc	1 ounce.

PITYRIASIS RUBRA.

Take of Olive-oil	4 ounces.
Creasote	5 drops.
Oil of ergot	2 ounces.

Mix.

PRURIGO.

Take of Menthol	1 drachm.
Olive-oil	5 ounces.

Mix.

PSORIASIS.

Take of Ointment of oleate of mercury	1 ounce.
Oil of cade	1 drachm.
Naphthol	1 drachm.

Mix.

PSORIASIS.

Take of Ointment of nitrate of mercury	1 ounce.
Iodol	1 drachm.

Mix.

PSORIASIS.

Take of Chrysarobin	1 drachm.
Benzoated lard	1 ounce.

Mix.

PSORIASIS.

Take of Oil of turpentine	1 ounce.
Lanolin	1 ounce.

Mix.

PSORIASIS.

Take of Green soap	1 ounce.
Ointment of ammoniated mercury	1 ounce.

Mix.

PURPURA.

Take of Alum	½ ounce.
Alcohol	6 ounces.

Mix.

PURPURA.

Take of Tannic acid	½ drachm.
Camphor	1 drachm.
Benzoated lard	1 ounce.

Mix.

PURPURA.

Take of Spirit of lavander	½ ounce.
Spirit of rosemary	½ ounce.
Tincture of witch-hazel	3 ounces.
Water	2 ounces.

Mix.

PURPURA.

Take of Tincture of capsicum	½ ounce.
Spirit of myrcia (bay-rum)	3½ ounces.

Mix.

ROSACEA—ACNE ROSACEA.

Take of Hydrochlorate of hydrastine	1 grain.
Tincture of witch-hazel	2 drachms.
Rose-water	2 ounces.

Mix. Apply twice daily.

ROSACEA—ACNE ROSACEA.

Take of Tannic acid	10 grains.
Sublimed sulphur	½ drachm.
Carbonate of zinc	1 drachm.
Lard	1 ounce.

Mix.

ROSACEA—ACNE ROSACEA.

Take of Ergotin	1 scruple.
Lanolin	3 drachms.

Mix.

ROSACEA—ACNE ROSACEA.

Take of Extract of witch-hazel	10 grains.
Ointment of lead oleate	3 drachms.

Mix.

ROSACEA—ACNE ROSACEA.

Take of Ointment of bismuth oleate	2 drachms.
Oil of juniper	5 drops.

Mix.

RUBEOLA—MEASLES.

Take of Camphor	½ drachm.
Oil of theobroma	1 ounce.

Mix.

RUBEOLA—MEASLES.

Take of Menthol	1 scruple.
Olive-oil	6 ounces.

Mix.

SCABIES—ITCH.

Take of Naphthol	½ drachm.
Lanolin	½ ounce.

Mix.

SCABIES—ITCH.

Take of Chlorinated oil	2 ounces.

Prepared by passing chlorine-gas in olive-oil.

SCABIES—ITCH.

Take of Naphthol	½ drachm.
Sublimed sulphur	1 drachm.
Ointment of oleate of mercury	½ ounce.
Simple ointment	½ ounce.

Mix.

SCABIES—ITCH.

Take of Oil of cade	3 drachms.
Sublimed sulphur	4 drachms.
Green soap	1 ounce.
Lard	2 ounces.

Mix.

SCABIES—ITCH.

Take of Red oxide of mercury	½ drachm.
Balsam of Peru	½ ounce.
Lard	3 ounces.

Mix.

SCARLATINA—SCARLET FEVER.

Take of Oil of eucalyptus	5 drops.
Prepared lard	1 ounce.

Mix.

SCARLATINA—SCARLET FEVER.

Take of Borax	½ drachm.
Powdered starch	1 drachm.
Lard	1 ounce.

Mix.

SCROFULODERMA.

Take of Iodoform	24 grains.
Oleic acid	1 ounce.

Mix.

SCROFULODERMA.

Take of Iodol	½ drachm.
Ointment of oxide of zinc	1 ounce.

Mix.

SCROFULODERMA.

Take of Ointment of oleate of mercury	½ ounce.
Subiodide of bismuth	1 scruple.
Ointment of oxide of zinc	½ ounce.

Mix.

SEBORRHŒA GENITALIUM—SEBORRHŒA OF THE GENITALS.

Take of Subnitrate of bismuth	1 drachm.
Carbonate of lead	1 drachm.
Glycerin	2 ounces.
Lime-water	2 ounces.

Mix.

SEBORRHŒA GENITALIUM—SEBORRHŒA OF THE GENITALS.

Take of Powdered oleate of zinc	2 drachms.
Calomel	1 scruple.
Powdered starch	½ ounce.

Mix.

SEBORRHŒA SICCA—DRY OR SCALY SEBORRHŒA.

Take of Oil of ergot	3 ounces.
Oil of rose	2 drops.

Mix. Apply twice a day. Especially serviceable in seborrhœa of the scalp or dandruff.

SEBORRHŒA SICCA—DRY OR SCALY SEBORRHŒA.

Take of Tincture of saponaria	2 ounces.
Fluid petroleum	2 ounces.

Mix. Useful in seborrhœa or dandruff of scalp.

SEBORRHŒA SICCA—DRY OR SCALY SEBORRHŒA.

Take of 50-per-cent. solution of boroglyceride	3½ ounces.
Oleic acid	½ ounce.
Carbolic acid	3 grains.

Mix. Good in seborrhœa of face, back, and chest.

SEBORRHŒA SICCA—DRY OR SCALY SEBORRHŒA.

Take of Calomel	10 grains.
Balsam of Peru	½ drachm.
Powdered camphor	1 scruple.
Ointment of rose-water	1 ounce.

SEBORRHŒA OLEOSA—OILY SEBORRHŒA.

Take of Boracic acid	2 drachms.
Orange-flower water	2 ounces.
Rose-water	2 ounces.

Mix.

SEBORRHŒA OLEOSA—OILY SEBORRHŒA.

Take of Chloride of zinc	5 grains.
Rose-water	4 ounces.

Mix.

SEBORRHŒA OLEOSA—OILY SEBORRHŒA.

Take of Corrosive sublimate	10 grains.
Tincture of witch-hazel	½ ounce.
Rose-water	4½ ounces.

Mix.

SEBORRHŒA OLEOSA—OILY SEBORRHŒA.

Take of Oleate of zinc	2 drachms.
Powdered arrow-root	½ ounce.

Mix.

SYPHILIS.

Take of Iodol	1 drachm.
Subnitrate of bismuth	3 drachms.

Mix. Use in syphilitic ulceration.

SYPHILIS.

Take of Ointment of oleate of mercury	½ ounce.
Ointment of oxide of zinc	½ ounce.

Mix.

SYPHILIS.

Take of Ointment of nitrate of mercury	½ ounce.
Oil of cade	½ drachm.
Ointment of oxide of zinc	½ ounce.

Mix.

SYPHILIS.

Take of Powdered red cinchona-bark	2 drachms.
Subnitrate of bismuth	4 drachms.
Iodol	3 drachms.

Mix. Use in syphilitic ulceration.

SYPHILIS.

Take of Corrosive sublimate	4 grains.
Lanolin	5 drachms.

Mix.

SYPHILIS.

Take of Extract of belladonna	10 grains.
Ointment of oleate of mercury	3 drachms.
Lanolin	½ ounce.

Mix.

SYPHILIS.

Take of Chromic acid	8 grains.
Water	1 ounce.

Mix. Valuable in involvement of mucous surfaces.

SYPHILIS.

Take of Chloride of zinc	10 grains.
Water	1 ounce.

Mix. Also for application on mucous surfaces.

SYPHILIS.

Take of Ointment of oleate of iron	½ ounce.
Salicylic acid	5 grains.
Ointment of oxide of zinc	½ ounce.

Mix.

SYCOSIS—INFLAMMATION OF THE HAIR-FOLLICLES.

Take of Boracic acid	1 drachm.
Oil of cade	30 drops.
Extract of ergot	1 scruple.
Ointment of oxide of zinc	1 ounce.

Mix.

SYCOSIS—INFLAMMATION OF THE HAIR-FOLLICLES.

Take of Solution of subacetate of lead	3 ounces.
Glycerin	3 ounces.

Mix.

SYCOSIS—INFLAMMATION OF THE HAIR-FOLLICLES.

Take of Ointment of bismuth oleate	3 drachms.
Nut gall	5 grains.

Mix.

SYCOSIS, CHRONIC—INFLAMMATION OF THE HAIR-FOLLICLES.

Take of Carbolic acid	4 grains.
Glycerin	6 ounces.

Mix.

SYCOSIS, CHRONIC—INFLAMMATION OF THE HAIR-FOLLICLES.

Take of Ointment of mercury oleate	1 ounce.
Oil of juniper	½ drachm.

Mix.

TINEA FAVOSA—FAVUS.

Take of Oleate of copper	1 scruple.
Salicylic acid	5 grains.
Calomel	10 grains.
Ointment of oxide of zinc	1 ounce.

TINEA FAVOSA—FAVUS.

Take of Boracic acid	1 drachm.
Alcohol	2 ounces.
Sulphuric ether	2 ounces.

Mix.

TINEA TONSURANS—RINGWORM OF THE SCALP.

Take of Oleate of copper	½ drachm.
Creasote	5 drops.
Lard	1 ounce.

Mix.

TINEA TONSURANS—RINGWORM OF THE SCALP.

Take of Oleic acid	1 ounce.
Iodol	½ drachm.

Mix.

TINEA BARBÆ—BARBER'S ITCH.

Take of Corrosive sublimate	8 grains.
Alcohol	1 ounce.
Distilled witch-hazel	3 ounces.

Mix.

TINEA BARBÆ—BARBER'S ITCH.

Take of Oleate of copper	1 scruple.
Oil of chamomile	5 drops.
Ointment of oxide of zinc	1 ounce.

Mix.

TINEA CIRCINATA—RINGWORM OF THE BODY.

Take of Ointment of oleate of mercury	½ ounce.
Oil of cade	20 drops.

Mix.

TINEA CIRCINATA—RINGWORM OF THE BODY.

Take of Boracic acid	1 drachm.
Thymol	5 drops.
Alcohol	4 ounces.

Mix.

TINEA VERSICOLOR—CHROMOPHYTOSIS.

Take of Ointment of oleate of copper	2 drachms.
Lanolin	2 drachms.

Mix.

TINEA VERSICOLOR—CHROMOPHYTOSIS.

Take of Resorcin	10 grains.
Lard	1 ounce.

Mix.

ULCERA—ULCERS.

Take of Iodol	1 scruple.
Ointment of oxide of zinc	1 ounce.

Mix.

ULCERA—ULCERS.

Take of Powdered red cinchona	3 drachms.
Subnitrate of bismuth	3 drachms.

Mix.

ULCERA—ULCERS.

Take of Tincture of witch-hazel	½ ounce.
Hydrate of chloral	1 drachm.
Water	3½ ounces.

Mix. Apply with old muslin or lint. Useful in indolent ulcers.

ULCERA—ULCERS.

Take of Subiodide of bismuth	½ ounce.
Powdered calamine	½ ounce.

Mix.

ULCERA—ULCERS.

Take of Chlorate of potassium	2 drachms.
Extract of ergot	1½ ounce.
Glycerin	1½ ounce.

Mix. Useful in ulceration of the mucous membrane.

URTICARIA—NETTLE-RASH—HIVES.

Take of Carbolic acid	1 drachm.
Alcohol	4 ounces.
Water	1 pint.

Mix.

URTICARIA—NETTLE-RASH—HIVES.

Take of Menthol	1 drachm.
Olive-oil	4 ounces.

Mix.

URTICARIA—NETTLE-RASH—HIVES.

Take of Creasote	10 drops.
Water	½ pint.

Mix.

URTICARIA—NETTLE-RASH—HIVES.

Take of Boracic acid	2 drachms.
Cologne-water	4 ounces.
Glycerin	2 ounces.
Rose-water	2 ounces.

Mix.

VARIOLA—SMALL-POX.

Take of Iodol	1 drachm.
Salicylate of sodium	2 drachms.
Precipitated carbonate of lime	2 ounces.

Mix. Sprinkle over the surface.

VARIOLA—SMALL-POX.

Take of Prepared chalk	6 drachms.
Boracic acid	1 drachm.
Oil of wintergreen	40 drops.
Subnitrate of bismuth	3 drachms.
Olive-oil	6 ounces.

Mix.

VARIOLA—SMALL-POX.

Take of Carbolic acid	5 grains.
Prepared chalk	½ ounce.
Subnitrate of bismuth	3 drachms.
Ointment of rose-water	1½ ounce.

Mix.

VERRUCA—WART.

Take of Ointment of oleate of mercury	½ ounce.
Lanolin	½ ounce.

VERRUCA—WART.

Take of Salicylic acid	1 drachm.
Collodion	3 drachms.
Sulphuric ether	2 ounces.

Mix.

MEDICATED PLASTERS.

ALUM, ERGOT, HEMLOCK, AND WHITE PRECIPITATE.

Alum	20 per cent.
Extract of ergot	20 "
Extract of hemlock-bark	20 "
White precipitate	30 "
* Plaster mass	10 "

A satisfactory combination for cancerous affections, pustular and tubercular growths, lupus, scrofulous patches, hyperidrosis, and bromidrosis.

BELLADONNA AND BORACIC ACID.

Extract of belladonna	30 per cent.
Boracic acid	20 "
Plaster mass	50 "

Invaluable in excessive and fetid perspiration, subacute and chronic eczema, accompanied with obstinate itching; erythema, herpes, herpes zoster, and in neuralgia and exalted and diminished sensibility of the skin; wounds, ulcers, burns and scalds, local itching spots, and in limited patches of vegetable parasites, especially ringworm and favus.

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* The plaster mass is composed of two parts of rubber, one part of galbanum, and one part of Burgundy-pitch.

CHRYSAROBIN.

Chrysarobin (chrysophanic acid)	35	per cent.
Plaster mass	65	"

Efficient for limited psoriasis, chronic eczema, chronic acne, and acne rosacea, and in old syphilitic and scrofulous spots on the skin.

CAMPHOR AND OXIDE OF ZINC.

Camphor	5	per cent.
Oxide of zinc	40	"
Plaster mass	55	"

For chronic eczema attended with severe itching, erythema, and in irritable boils and carbuncles.

HYDRASTIN.

Hydrastin	30	per cent.
Plaster mass	70	"

Useful in chancroid, unhealthy and sloughing sores, cancerous growths, and excessive secretion of the skin.

IODOFORM.

Iodoform	40	per cent.
Plaster mass	60	"

Appropriate and useful for chancre, chancroid, syphilitic and scrofulous spots, ulcers, and wounds.

LEAD.

Oxide of lead (litharge)	30	per cent.
Plaster mass	70	"

Useful for fissured nipples and other varieties of eczema, impetigo, erythema, burns, and frost-bites.

LEAD AND OPIUM.

Lead oxide (litharge)	30	per cent.
Extract of opium	10	"
Plaster mass	60	"

Is beneficial in all irritable conditions of the skin, bed-sores, and various forms of ulcers and carbuncles.

MERCURIAL.

Red oxide of mercury	50 per cent.
Plaster mass	50 “

Valuable in syphilitic patches, especially in chronic cases; pigmentary deposits, particularly chloasma, or yellowish-brown or blackish spots on the skin; freckles, syphilitic and scrofulous ulcers, enlarged glands, elephantiasis, and indurated acne spots.

Deficiency of pigment, keloid scars, lupus, and in hardened and infiltrated spots of the skin, which result from many skin affections, especially boils, carbuncles, inflammation of the hair-follicles, eczema, and small-pox.

OXIDE OF ZINC.

Oxide of zinc	40 per cent.
Plaster mass	60 “

Serviceable in subacute and chronic eczema, acne, seborrhœa, herpes, ulcers, and boils.

OXIDE OF ZINC AND WHITE PRECIPITATE.

Oxide of zinc	30 per cent.
White precipitate	15 “
Plaster mass	55 “

Available for irritable syphilitic and scrofulous patches and chronic eczema.

PHYTOLACCA AND BELLADONNA.

Phytolacca extract	20 per cent.
Belladonna extract	20 “
Plaster mass	60 “

Serviceable in obstinate eczema, ulcers, burns, dermatitis, arresting and overcoming tendency to inflammation, particularly of the female breast.

SUBIODIDE OF BISMUTH.

Subiodide of bismuth	30 per cent.
Plaster mass	70 “

Useful in syphilitic and scrofulous spots, acne, rosacea, chloasma, freckles, and all pigmentary deposits; orchitis, bubo, and all enlargements of glands; indurated patches following inflammation of the skin.

SALICYLIC ACID.

Salicylic acid	25 per cent.
Plaster mass	75 “

Useful for eczema of the palms of the hands and soles of the feet, and in all thickened conditions of the skin occurring in the course of psoriasis, scrofuloderma, erysipelas, boils and carbuncles, local varieties of hyperidrosis and bromidrosis.

SALICYLIC ACID AND CANNABIS INDICA.

Salicylic acid	25 per cent.
Extract of cannabis indica	20 “
Plaster mass	55 “

For corns, horns, warts and callosities, acne, rosacea, chronic eczema, and psoriasis.

SALICYLIC ACID AND CREASOTE.

Salicylic acid	25 per cent.
Creasote	5 “
Plaster mass	70 “

Useful in lupus, chronic ulcers, excessive and fetid perspiration.

*MEDICATED SOAPS.**

Amber Soap (*Eau de Luce*).—A liquid soap which has as its chief ingredients tincture of oil of amber and balsam of Gilead, with water of ammonia.

Used in enlarged glands, moles, warts, etc.

Alum Soap (*Sapo Aluminis*).—Ten per cent., or 168 grains, alum (potassæ aluminis).

Alum soap is most useful in hyperidrosis, seborrhœa oleosa, and pustular eczema. It is very efficient in all indolent conditions of the integument as occur in lupus, cancer, ulcers, and in scrofulous and syphilitic skin affections.

Arnica Soap (*Sapo Arnicæ*).—Ten per cent., or 168 grains, extracti arnicæ.

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* Each soap referred to should be divided into pieces or cakes that have an average weight of three and a half ounces, or 1,680 grains.

Arnica soap is very good to use in sore nipples, abrasions, wounds, bruises, boils, carbuncles, and many of the pustular skin affections.

BALSAM SOAP.—Five per cent., or 84 grains, balsami Peruviani.

Used in indolent ulcers, sinuses, abscesses, etc.

BORO-GLYCERIDE SOAP (*Sapo Boro-glyceriti*).—Ten per cent., or 168 grains, 50-per-cent. solution boro-glyceride.

It is valuable for cleansing wounds, ulcers, suppurating, sloughing, or gangrenous surfaces, lessening inflammation, and preventing the action of atmospheric germs ; in general and local pruritic conditions of the skin, and in acne and in seborrhœa.

CAMPHOR SOAP (*Sapo Camphoræ*).—Ten per cent., or 168 grains, camphoræ.

It is most frequently used for the relief of pruritus that attends eczema, chilblains, and other irritable affections of the skin.

CARBOLIC-ACID SOAP (*Sapo Acidi Carbolici*).—Five per cent., or 84 grains, acidi carbolici.

It is excellent for chronic eczema and psoriasis.

CHAMOMILE SOAP (*Sapo Anthemidis*).—Ten per cent., or 168 grains, extracti anthemidis.

It is an excellent soap to use in intertrigo or chafing, and in dermatitis and seborrhœa, while it is particularly valuable both for its medicinal virtues and aromatic odor in all conditions of excessive secretion and ill-smelling sores.

CHAMOMILE AND SULPHUR SOAP (*Sapo Anthemidis Sulphurisque*).—Ten per cent., or 168 grains, extracti anthemidis ; 5 per cent., or 84 grains, sulphuris loti.

It is beneficial in seborrhœa sicca, loss of hair, and in acne.

ELDER-FLOWER SOAP (*Sapo Sambuci Florum*).—Ten per cent., or 168 grains, sambuci florum.

Used in intertrigo, rosacea, sunburn, etc.

ERGOT SOAP (*Sapo Ergotæ*).—Ten per cent., or 168 grains, ext. ergotæ.

Used in eczema, acne, rosacea, etc.

EUCALYPTOL SOAP (*Sapo Eucalyptoli*).—Five per cent., or 84 minims, ol. eucalypti.

It is a useful disinfectant application to all foul-smelling wounds and ulcers. In bromidrosis or fetid perspiration it is very efficacious.

GLYCERIN SOAP (*Sapo Glycerini*).—Fifteen per cent., or 252 grains, glycerini.

Used for roughness of the skin, chaps, pityriasis, etc.

IODINE SOAP (*Sapo Iodi*).—Three per cent., or 50$\frac{2}{5}$ grains, iodi resublimati.

Used in syphilitic and scrofulous skin affections, old granulations, etc.

Iodide of Sulphur Soap (*Sapo Sulphuris Iodidi*).—Three per cent. sulphuris iodidi, $50\frac{2}{5}$ grains in a cake.

Used in acne indurata, chronic ulcers, freckles, yellowish-brown or blackish patches on the skin, etc.

Kino Soap (*Sapo Kino*).—Ten per cent., or 168 grains, ext. kino.

Used in eczema, rosacea, ulcers, etc.

Lead Soap (*Sapo Plumbi*).—Three per cent., or $50\frac{2}{5}$ grains, plumbi acetatis.

Used in boils, carbuncles, abrasions, bed-sores, etc.

Naphthol-Sulphur Soap (*Sapo Naphtholi Sulphurisque*).—Three per cent., or $50\frac{2}{5}$ grains, naphtholi; 10 per cent., or 168 grains, sulphuris loti.

Used in scabies (itch), pediculosis (lousiness), insects of all kinds on the skin, eczema, psoriasis, seborrhœa, hyperidrosis, bromidrosis, etc.

Naphthol Soap (*Sapo Naphtholi*).—Five per cent., or 84 grains, naphtholi.

It is useful for animal parasites. The bite and sting of many insects and animals may often be cured or relieved by its use. It often acts well in eczema, psoriasis, pityriasis, ichthyosis, and offensive discharges from the skin. Fetid perspiration is not only controlled, but often cured by its use.

Salicylic-acid Soap (*Sapo Acidi Salicylici*).—Four per cent., or $67\frac{1}{5}$ grains, acidi salicylici.

It is an admirable soap for toilet purposes, and has proved serviceable in those thickened conditions of the epidermis that occur in the plantar, palmar, and extensor surfaces. Sycosis and pustular eczema are generally benefited by its use. It is likewise serviceable in fetid perspiration and all foul-smelling wounds or sores.

Sublimate Soap (*Sapo Hydrargyri Chloridi Corrosivi*).—One per cent. or $16\frac{4}{5}$ grains, hydrargyri chloridi corrosivi.

It is a valuable soap in animal parasitic diseases, such as pediculosis or lousiness, scabies or itch, and for destroying insects of all varieties that may infest the body. Freckles, pigmentary deposits, especially chloasma, or yellowish-brown or blackish patches on the skin, are greatly relieved and sometimes removed by its employment. It is an effective soap in all kinds of itching of the integument. It is likewise markedly serviceable in the various syphilitic skin-eruptions.

Sulphur Soap (*Sapo Sulphuris*).—Ten per cent., or 168 grains, sulphuris loti.

Used in acne, rosacea, etc.

Tannin Soap (*Sapo Acidi Tannici*).—Three per cent., or 50⅖ grains, acidi tannici.

Used in seborrhœa oleosa, excessive sweating, ulcers, granulations, etc.

Tannin-Balsam Soap (*Sapo Tanno-Balsamicus*).—Two per cent., or 33⅗ grains, acidi tannici; 5 per cent., or 80 grains, balsami Peruviani.

Used in wounds, ulcers, chilblains, etc.

Thymol Soap (*Sapo Thymoli*).—Three per cent., or 50⅖ grains, thymoli crystallisati.

Used in ulcers, wounds, abscesses, sinuses, pustular eczema, etc.

Turpentine Soap (*Sapo Terebinthinæ Compositus*).—This soap has been known as Starkey's, and is composed of equal parts of potassium carbonate, oil of turpentine, and Venice turpentine.

Used in chilblains, syphilis, psoriasis, etc.

Tar Soap (*Sapo Picis Liquidæ*).—Ten per cent., or 168 grains, picis liquidæ.

Tar soap is valuable in chronic eczema, psoriasis, and ichthyosis.

Wintergreen Soap (*Sapo Gaultheriæ*).—Three per cent., or 50⅖ grains, acidi methylsalicylici.

Used in eczema, psoriasis, lichen, acne, etc.

Witch-hazel Soap (*Sapo Hamamelidis*).—Ten per cent., or 168 grains, ext. hamamelidis.

Used in fetid perspiration, eczema, loss of hair, etc.

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